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The Impact of Medicaid Managed Care on the Lives of
The Chronically Mortally Ill in San Francisco

Dorrah Palge Steinbaum

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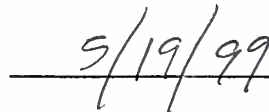


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**The Impact of Medicaid Managed Care
on the Lives of the Chronically Mentally Ill
in San Francisco**

A Thesis Submitted to the
Yale University School of Medicine
in Partial Fulfillment of the Requirements for the
Degree of Doctor of Medicine

by

Deborah Paige Steinbaum

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THE IMPACT OF MEDICAID MANAGED CARE ON THE LIVES OF THE CHRONICALLY MENTALLY ILL IN SAN FRANCISCO.

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The changing treatment patterns of 154 severely mentally ill individuals were tracked over a five-year period just before and during San Francisco's transition to Medicaid managed care to determine the effects of implementation of Medicaid managed care on a chronically mentally ill population. Sources of information included INSYST (a billing/records database), "Bed Committee" records, and departmental memos and reports. Tests of statistical significance were conducted using an independent sampling design.

The proportion of clients using acute services decreased from 65.9% in 1994 to 41.8% in 1998 and the proportion of clients in semi-permanent care increased from 11.0% in 1994 to 52.5% in 1998, indicating that managed care is shifting the San Francisco mental health system's focus from crisis management to long-term, chronic care. Both of these changes were statistically significant ($p < 0.000$) as was a decrease in the proportion of clients using intermediate level services was also statistically significant. By 1998, significantly higher proportions of clients in assertive community treatment (ACT) plans used acute and intermediate level services than did their non-ACT counterparts; thus, even with an ACT intervention, they were less able to maintain stability in the community. Substance abusers used similar amounts of care when compared to non-users except in the last year of the study, when they were significantly less likely to need acute care. This was largely due to a decrease in emergency room usage, which may represent the beginning of a shift in patient attitudes.

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Introduction

Every day, approximately 30% of the United States requires some form of mental health care. Of these people, only a small proportion is considered to be severely mentally ill or, in the case of children, seriously emotionally disturbed (SMI/SED).^{*1} The severely mentally ill are defined as those people so incapacitated by their psychiatric disease that they are unable to function normally in mainstream society, even with extra support services. They use an inordinate amount of the resources devoted to mental health and health care in general. The case of schizophrenia is particularly striking - schizophrenics, who account for only 1% of the general population, consume 2.5 % of the nation's health care expenditures. As of 1990, public expenditures on mental health services in the United States amounted to over 20 billion dollars per year.²

The public health system's expenses are so high because they pay for a majority of the health care received by the country's mentally ill. Since few of the SMI are capable of unsupported employment, their needs are usually met by federal, state, and local government programs; it is estimated that approximately 2/3 of their expenditures are paid for by these programs.³ Most mental and physical health services are provided through Medicare, Medicaid, and community mental health programs, but other programs cover such arenas as housing, substance abuse, and financial assistance.

* There are no firm numbers of the amount of SMI/SED in the population, given the fragmented nature of current systems of care and individual variation in disease patterns. In 1990, the prevalence of mental illness per 10,000 people was estimated to be 96.0 for schizophrenia, 72.0 for bipolar disorder, and 447.0 for major depression.

In the current era of managed care, the expenditures incurred by the SMI/SED population have been the focus of recent cost-cutting measures. This represents the confluence of two major trends, and thus marks a watershed moment for mental health care. The first trend is the continual reduction of services for the mentally ill since deinstitutionalization began in the early 1960's. The second, and more recent, trend is the national shift to managed care resulting from the skyrocketing health care costs of the 1980's.

Medicaid managed care is fairly new to the field of mental health, and in the information void of the early 1990's, each state developed somewhat different strategies for administration and organization of their programs. The state of California began to plan for implementation of Medicaid managed care in 1991, ultimately choosing to devolve responsibility for the program to each of the states' 58 counties. This study examines the impact of changes made in the provision of mental health care in the city and county of San Francisco. It does so by examining the lives of the city's severely mentally ill in the period just before and during the first few years of managed mental health care, from 1994 to 1998.

San Francisco as a Case Study

San Francisco is one of the most unique cities in the United States, containing a wealth of ethnic and cultural diversity, a mild climate, and one of the most liberal populaces in the country. It is both a city and county, with a population of approximately 778,000 residents, 2/3 of whom are adults between the ages of 20 and 64.⁴ No one ethnic group dominates the population - whites represent 43%, Asian/Pacific Islanders 32%, Latinos 15%, and African Americans 10%.⁵

San Francisco is also notable for its claim to some of the highest rates of mental illness in the state of California for reasons that remain unclear. For example, schizophrenia, which has a statewide prevalence of 96.0 per 10,000 people, has a prevalence in San Francisco of 8.1 per 10,000 people. Rates of bipolar disorder show an even greater disparity between San Francisco and the rest of the state: the illness has a statewide prevalence of 72.0 per 10,000 compared to a prevalence of 114.3 per 10,000 in San Francisco.⁶ Other studies have cited even higher rates for the city when compared with the rest of California.⁷ Another indicator of mental health, the city's suicide rate, is also quite high. In fact, San Francisco has the highest suicide rate of all of California's urban counties.^{8*}

The branch of the public health department responsible for mental health, the Division of Mental Health and Substance Abuse (DMS), clearly is serving a population with a significant amount of pathology. Furthermore, this population has been steadily increasing in size over the past several years.⁹ In 1997-1998, DMS served 19,117 clients, in 1996 - 1997, DMS served 17,497 clients, and in 1991-1992, it served 16,100 clients.^{10,11} Over a six-year period, the population served therefore increased by 18%. The majority of the department's clientele, 65%, is funded by MediCal, while the remainder is funded by Medicare (16%) or has no insurance (16%).¹²

This differs from the city's overall insurance picture, which is dominated by a large population of uninsured people. Approximately 120,000 of the city's residents are MediCal recipients, while 150,000 are uninsured or underinsured. Of the MediCal

* San Francisco has a suicide rate of 15.7/100,000 versus the state's rate of 11.2/100,000.

recipients, only 28,000 receive aid on the basis of a disability, and of these people, approximately 13,000 are disabled by mental illness.

Several characteristics of the city make it a particularly interesting place to study the lives of the mentally ill, the most striking of *which* is its huge population of homeless people. A 1991 study found that San Francisco was second only to Washington, DC in terms of homelessness per capita.^{13*} In FY 1993 - 1994, an estimated 4300 people were homeless each night, and 11,000 to 16,000 were homeless at some point in the year.¹⁴ Approximately 9500 people were turned away from the city's shelters each month because the shelters were filled to capacity.¹⁵ The situation is particularly bad in San Francisco because the city has one of the tightest housing markets in the country. Rents have increased drastically over the past two decades, as gentrification has swept through formerly low-income neighborhoods. For example, between 1978 and 1998, rents for the cheapest rooms increased by 166%, a rate 30% faster than that at which incomes increased, while simultaneously, the supply of low income housing dropped precipitously, with the supply of SRO hotel rooms dropping by 40%.¹⁶

San Francisco also has a large population of substance abusers. Its publicly funded substance abuse programs served 12,000 clients in 1996 - 1997; unfortunately, even this many treatment slots could not accommodate treatment on demand for all that needed it. Several markers of drug and alcohol abuse indicate that San Francisco's problem is one of massive proportions. It recently had the highest rate of

drug related emergency room visits in the country, and from 1991 through 1993 had the distinction of leading California in drug related deaths, with a death rate 2 V2 times that of the rest of the state.¹⁷

The confluence of homelessness, substance abuse, and mental illness creates a treatment quagmire, where each of these problems is worsened by association with the others. Dual diagnosis rates among the severely mentally ill are quite high in the city, reaching 70% to 74% in studies of acutely ill individuals.¹⁸

The Evolution of Managed Care in San Francisco

Managed Care

There is no standardized definition of "managed care." In general, it is viewed as a tool for organizing the provision of health care to populations. It aims to streamline services by simplifying points of entry into the health care system (for example, through a primary care provider), to better coordinate all aspects of a patient's care by centralizing authorization, and to control costs by reducing unnecessary and redundant services. Ideally, the latter goal is accomplished by devoting more resources to preventive services and alternatives to costly hospitalizations. Finally, managed care, with its focus on increased accountability and outcomes, theoretically acts as a means toward improving data collection and analysis.

^{**} San Francisco had 7.69 homeless per 1000 people, Washington, DC had 7.93 per 1000 people. No other cities' homeless rates were anywhere near these numbers, which are probably underestimates since they were derived from the 1990 census, a study whose methodology tends to undercount homeless and poor people.

Recently, government and industry have employed managed care primarily as a means to control rapidly rising health care costs. Between 1960 and 1990, American health care expenditures grew at a rate double that of the rest of the nation's economy. In the early 1990's, fears about recession, downsizing, and the growth of the uninsured population propelled both the public and private sectors to look for new ways to control health care costs. Nationally, the Clinton administration attempted to construct a universal health plan in 1993; when this model failed in 1994, reforms became fragmented, with momentum shifting to the realm of individual states and independent businesses. By 1995, 54 million Americans were members of HMO's and 130 million were enrolled in some form of managed care.¹⁹

The arena of mental health was not spared these rapid changes. Between 1992 and 1994, the number of Americans in managed behavioral health plans increased 38% from 78 to 108 million. By 1995, 58% of the population was in a managed mental health plan.²⁰

For the chronically mentally ill, most of whom receive health care funded by the government, the impact of this shift was felt only when Medicaid programs switched to managed care models. Medicaid managed care is a relatively new phenomenon, growing rapidly over the past few years. Between 1993 and 1994, the number of Medicaid clients in managed care doubled, to 7.8 million people.²¹ Since each state is responsible for administering its own Medicaid program, the development of Medicaid managed care has occurred in a piecemeal fashion, with each state using a somewhat different model.

The state of California began to officially plan for implementation of Medicaid managed care, in 1991, with the passage of a bill mandating that Medicaid programs "arrange and encourage access to health care through entry to organized managed care plans of the type available to the general public."²² The state gave primary responsibility for managing Medicaid, known as MediCal in California, to the counties - each county in the state became responsible for delivering and/or brokering any MediCal services provided to those clients who were residents of their county. In 1992, CA Senate Bill 485 expanded the purview of MediCal managed care, and in 1994, Assembly Bill 757 established a separate managed care plan for mental health.²³

Mental health and substance abuse were to be "carved-out" of the rest of the MediCal package, with a separate administration and budget. Each county was to have a single mental health plan, and county public health officials were given the right of first refusal - the choice of whether to run their own plan or to have the state contract it out. State officials felt that a carve-out would serve California's SMI best by helping to maintain community health centers and eliminating the risk of selection bias. The single plan model for mental health therefore was in deliberate contrast to MediCal's "two plan model" for physical health, where each county was required to have two competing plans.

Mental health managed care was to be phased in over time. The initial step was inpatient consolidation, consolidation of the two MediCal funding streams into one pot that would now be managed by the county. This would be followed several years later by outpatient consolidation, after which capitation would occur. The

projected date at which these latter two events were to occur changed several times. At the time of this writing, inpatient and outpatient consolidation have both occurred, inpatient on Jan 1, 1995 and outpatient on April 1, 1998; capitation currently is scheduled for July 1, 1999. This paper thus examines the period in San Francisco history from the year prior to inpatient consolidation to the first three months of outpatient consolidation.

Other States' Experiences

Expectations are that managed care will shift the focus of mental health services from an acute, crisis-oriented model to one stressing stable, long-term care. This makes financial sense, as acute care, such as use of emergency rooms and inpatient services, is much more expensive than rehabilitative services, such as residential care and vocational rehabilitation. The shift in focus also makes sense clinically, as it would improve the overall status of the patients, enabling them to achieve stability in their outside lives. This, in turn, could help to break the cycle of homelessness and instability that often causes debilitating secondary symptoms like depression and anxiety. Finally, from a societal perspective, the shift in focus could help to alleviate public problems such as the commission of misdemeanor crimes by homeless mentally ill individuals and the subsequent use of prisons to house these people.

Other state Medicaid mental health programs seem to have met at least some of these goals. The most widely studied system is that of Massachusetts, which carved out mental health and substance abuse services and contracted them out to a private, for profit behavioral health care firm. The firm reduced costs substantially

within the first year, achieving savings of approximately 22%.²⁴ In addition, over the first three years, the likelihood of an inpatient admission was reduced from 29% to 24%, average inpatient stay was reduced by 3.3 days, and total cost per patient was slightly reduced. Since use of community services was not measured, nor was the extent of cost shifting estimated, only limited conclusions can be drawn about the impact of the new system upon overall mental health care. Reduction of costs was partly due to the diminished use of inpatient resources, but was mostly due to lower negotiated fees for inpatient services.^{25,26} In addition, Massachusetts may be difficult to use as a standard of comparison, since the state spends more per capita on Medicaid than most other states and thus may have more room for budget cuts. For example, whereas Massachusetts ranks third in the nation in overall Medicaid spending per person in poverty, California ranks 49th.^{27,28}

Comparison of traditional fee-for-service Medicaid with prepaid Medicaid mental health care has been attempted in studies of several other states, none of which examined outcomes over more than a one to two year period. Most studies found that prepaid care resulted in a reduction of inpatient usage, but the magnitude of this reduction varied greatly. Changes in outpatient usage followed no predictable pattern, and substance abuse was treated no more and often much less than in a fee-for-service environment. Of particular note was the fact that the longer-term studies found that global functioning of schizophrenics may decrease with more time in prepaid care.²⁹ Unfortunately, few of the studies followed patients for longer than a year, the amount of time that was needed for this difference to become significant.

The most troubling outcome seen in Medicaid managed mental health occurred in Tennessee, where the TennCare Partners Plan actually came under federal investigation for failing to fulfill its contractual obligations to the citizens of the state.

The plan was doomed from the start due to flaws in its design. It did not designate a target population, and the SMI were thus lumped into the general population to compete for a finite body of resources. In addition, since the capitated rates set by the state were the same for all Medicaid clients, with no adjustments for severity of disease, taking on SMI clients became a liability to clinicians. Finally, since the plan was a carveout, but did not clearly delineate lines of responsibility between physical and mental health practitioners, minimal oversight and a lack of accountability were inevitable.

Many mentally ill patients suffered as a consequence of these changes and even dropped out of the mental health system. Community mental health centers, the traditional care providers for the SMI, were forced to shut down, and consequently, long term, productive relationships were terminated. Within one year, Tennessee saw a 15% decrease in mental health and substance abuse services.³⁰ A leading researcher concluded that "TennCare Partners serves as a warning to other states that privatization of Medicaid-funded behavioral health care, in and of itself, may not improve service delivery or decrease costs."³¹

Expectations of the San Francisco Model

San Francisco differs from the above cases in several important ways. As a county-based system, it covers a much smaller population and geographic area than did the statewide programs, and as a public system, it is theoretically more invested in

eliminating cost shifting than private systems. Also, since the city's managed care system was built upon a foundation of existing mental health resources in San Francisco, minimal changes in infrastructure were required to make the transition. The city was not new to managed care, as it had previously constructed a capitated program resembling managed care for severely emotionally disturbed children and in the adult sector, it had already begun limiting services to a target population. Finally, since the design of the California system stipulated that managed care was to be phased in over the course of several years, the chance of a Tennessee-like scenario, with sudden massive change and resulting chaos, was minimized.

Setting the Stage for Managed Care

San Francisco's system of mental health care began moving towards managed care in the early 1990's. Prior to this, the system was a loose network of community programs, private providers, private hospitals, and the county hospital, San Francisco General Hospital (SFGH). Services were disjointed and uncoordinated, and clients' primary providers shifted frequently, each time that a client changed service locations. For example, if a client was hospitalized, their primary provider usually changed. This limited continuity of care and was confusing for clients, who often did not have anyone responsible for organizing and coordinating their services. Access to the system was uncontrolled and decentralized, managed by each client's individual care provider.

The county department of mental health, which was largely responsible for funding and running public community mental health programs and for managing the care provided through Short-Doyle MediCal funds, was a "hands-off" manager. It

required very little data to be reported by community programs, and its only formal tracking system was its computerized billing system, which was a database designed for financial management, not for organizing clinical care. In addition, the county public hospital, which housed the city's psychiatric emergency services and most of its inpatient facilities, was operating quasi-independently; the department of mental health exercised minimal oversight over the facility, and even the hospital's budget was administered separately from that of the rest of the department.

Funding of public psychiatric services was mainly through MediCal, Medicare, and the City's General Fund (for indigent care), but MediCal funding had been split into two streams, Short Doyle and Fee For Service MediCal (FFS). The county administered the Short Doyle MediCal funds, which were used for some inpatient services and a large amount of community-based care, and the state was responsible for FFS MediCal, making direct payments to private hospitals and practitioners. The state-run system was not formally linked to that of the county, although there was a large amount of overlap between the two systems. This was quite important, as a study found that the 13% of MediCal clients who used resources of both systems were responsible for 36% of the expenses incurred. Unfortunately, no means existed for identifying or tracking these overlap clients.

San Francisco County published its Strategic Plan for Mental Health in 1990, based upon a 1989 needs assessment conducted with various stakeholders in the system (consumers, family members, doctors, nurses, social workers, program directors, etc.). The Plan delineated the goals and values of the San Francisco mental health system, stating that it must be "community-based, culturally competent, and

consumer-guided.³² It also defined a target population for public mental health services for the first time, initiating a major change in the treatment culture of a city committed to an ideal of universal access. (The Plan did not clearly spell out its priorities for the immediate future, which proved to be problematic when budget cuts and a statewide recession interfered with its implementation.)

The next major change affecting statewide provision of mental health was the process known as "Realignment," heralded by state's passage of the BronsonMcCorquodale Act of 1991. Realignment was an attempt by the state to create a stable form of funding for mental health services and to devolve responsibility for administration of these funds to the 58 individual counties in the state. Statewide funding was created by the passage of a vehicle licensing fee and increased sales tax, and to access their portion, each county was required to submit matching funds. As a result of this bill, counties were now empowered to decide how many beds they needed in the state psychiatric hospitals and locked "Institutes for Mental Disease" (IMDs) and to contract with the state for the use of these beds. By gaining control of these functions previously controlled by the state, counties gained increased autonomy and flexibility in administering mental health services. As a result, many counties decreased their number of IMD and state hospital beds, and used the proceeds to fund new local alternative treatment options.

In 1993, two bills were passed which affected local provision of MediCal services: The MediCal Rehabilitation Option and The MediCal Coordinated Services Act. The former expanded the number and type of services for which counties were able to bill MediCal to include less traditional treatment settings, such as vocational

rehabilitation. This bill was passed in response to a statewide survey, which found that the mentally ill placed a higher priority on their need for housing and jobs than upon their need for changes in clinical treatment.

The Coordinated Services Act required that counties administer two changes, which ultimately eased the transition to managed care. First, it required that they change the way in which clients entered the mental health system. Clients were still able to access the system via any provider, but now needed to be assigned a coordinator once in the system. This person would bear primary responsibility for managing a patient's treatment services. As part of this process, clients and their coordinators had to compose a yearly "Coordination Plan," which documented necessity for services, outlined a client's treatment goals and authorized those services needed to meet the goals. The second requirement of the Act was that counties implement ongoing quality management programs to ensure compliance with the program.

1993 also saw major structural changes initiated at the San Francisco Division of Mental Health in reaction to the budget cuts and recession of the early 1990's. These cuts threatened to drastically decrease the SMI population served by the department from 13,000 to 8,000 people. The division was again forced to evaluate its policies and value system, and concluded that it needed to manage its services differently.

It began to enforce target population criteria by creating four Integrated Service Centers (ISCs) which would act as single points of entry to the mental health system. The centers consolidated many services under one roof, including medication

management, urgent care, individual and group therapy, and self-help. Each center serves a specific region of the city and also serves a specific cultural or ethnic group. For example, the center located in The Mission, a Latino neighborhood, has a focus on Latinos, with Spanish speaking therapists. Other groups associated with specific centers include homeless people, gays and lesbians, and Chinese and Russian immigrants. The development of the ISCs simplified the process of access for many consumers in the system and created a means for delivering culturally appropriate care. The centers are centrally managed and employ a standardized set of criteria to determine entry to the mental health system, creating system-wide consistency. In addition, each center is required to submit treatment data periodically, facilitating the system-wide determination of outcomes from a central location.

The consequences of this reorganization were far reaching, and although they were a reaction to budget cuts, they prepared the county well for the onset of managed care. The establishment of the ISCs created neighborhood-based single points of entry into the mental health system; their responsibility for local clients helped clarify accountability in the new system. Data collection and tracking of ISC clients ushered in an "outcomes and performance driven" orientation, while centralized authorization of services began to shift power to the future administration of managed care. Finally, the ISCs restriction of entry to members of a target population effectively placed them in the role of gatekeepers to the system.

These changes were not made easily. Treatment providers in San Francisco were committed to the ideal of universal access and were averse to restricting services only to those who fit a paper definition of need. They also were used to the "old way

of doing things," when they operated fairly autonomously and were not required to submit reams of paperwork in order to be paid. Giving up control to a centralized power was very difficult for most community providers. Adjusting to the new roles of coordinators and ISCs was also a challenge, requiring a change in the treatment culture. Many people viewed the addition of coordinators and ISCs as the imposition of another layer of bureaucracy to an already top-heavy system.³³ Clients were entered into the system without going through an ISC. Often, the coordinators were ignored or not contacted when a client was in need and when they were contacted, they frequently were unaware of their duties.

MediCal Managed Care Emerges

Planning for inpatient consolidation in San Francisco began in earnest in March 1994 with the City and County Health Commission's passage of a bill "Endorsing the Development of Managed Mental Health Care."³⁴ The Division of Mental Health compiled an interdisciplinary transition team to begin preparations for consolidation. The team, consisting of psychiatric nurses, a psychiatrist, and psychologist, among others, began a series of mock chart reviews in applicable private hospitals, discussing their concerns with hospital staff and developing an administrative system to handle the new responsibility. A 24-hour admission notification hotline was set up, and initial policies and procedures were devised.

In order to determine the characteristics of the FFS patient population, a descriptive study was completed of all FFS admissions in November and December 1994. It had been unclear whether the FFS population would represent a largely new clientele (aside from the overlap clients mentioned earlier), but the study determined

that almost all were clients known to the public mental health system. Of these, only 60% were coordinated, indicating that this was an issue needing to be addressed. The most interesting finding of the study concerned recidivism - many patients were cycling between the private and the public system, but because the private hospital system operated as a series of independent providers, none of this was realized. Patients would show up at the Emergency Room of one facility, stay a few days, and then upon discharge, appear at the Emergency Room of another hospital. An administrator described this confusion saying, "its as if they (the hospitals) just found these people under a rock, with no history, no knowledge of anything, and an entirely unnecessary new workup is done."³⁵ Finally, the study found the issue of substance abuse found to be a major problem, as 70% of the sample had past or current substance abuse problems.³⁶

Inpatient consolidation occurred as planned, on January 1, 1995, and as the system developed, it became apparent that discharges from the hospitals were delayed by a lack of available mental health transitional beds, costing the county thousands of valuable dollars. In order to alleviate the situation, the "Bed Committee" was formed. Its mission was to authorize and prioritize the use of beds funded by the mental health system, and in particular, to ensure that the most severely ill clients were adequately served. It was composed of administrators from the public and private sectors, both hospital and community based. Inclusion of representation from the substance abuse establishment was particularly important, as was representation from the nonprofit organizations that managed the community mental health beds.

The Bed Committee was crucial to the evolution of San Francisco's managed care system. It represented the first time that most of the stakeholders in the system had gathered to discuss the problems of determining dispositions for clients in crisis. In accomplishing this task, working coalitions were constructed and discussions held about correcting deficiencies of the system. The Bed Committee also served as a forum for the heads of the Division of Mental Health to establish authority in a difficult power struggle. The issues of provider autonomy, control of data, and resistance to change were played out among those with the most authority in this setting. Finally, the Bed Committee contributed a new database and a wealth of data to the new mental health plan, which would aid in the tracking and coordination of clients.

Other changes emerged as the new mental health plan developed. The issue of recidivism originally identified in the pilot study was addressed by the formation of a "High User Review" committee. A Mobile Crisis Team was formed to aid clients in crisis and simultaneously avoid the use of costly Psychiatric Emergency Services. Oversight of the county hospital and Psychiatric Emergency Services was strengthened as it became apparent that the private FFS hospitals were more efficiently managing admissions than the county hospital while achieving equivalent results. A locked "rehabilitation" facility was opened in the county, providing more flexibility in the intermediate care system, while 80 IMD beds were reduced. Finally, the relationship between substance abuse and psychiatric services was strengthened, as it became apparent that dual diagnosis treatment was a key to providing effective treatment for hospitalized clients. Target Cities, a department of the city's substance

abuse services, assigned a particular staff member to act as liaison between the two systems. This person conducted assessments of clients, while they were still inpatients, if necessary. He also sat on the bed committee, and was responsible for linking mental health patients to the appropriate substance abuse programs when this was requested by the committee.

Measuring Outcomes of Managed Care

Development of Outcome Indicators

Controversy exists about how to best measure outcomes of managed care strategies, particularly in the realm of mental health. Traditionally, managed care companies have relied upon fiscal data and service utilization data to evaluate their achievements. In mental health, this translates into such measures as rates of inpatient and outpatient utilization, length of stay in acute care facilities, average cost per client, and total expenses of the system. These measures, if used alone, are inappropriate outcome measures for evaluating psychiatric outcomes, because they have no relation to the clinical or functional status of patients. For example, when inpatient service utilization is cut, a patient's clinical symptoms may worsen. Unless relevant data is incorporated into outcome measures, this possibility cannot be evaluated.

It remains unclear what this relevant data should be. Clinical and functional surveys, such as the Beck Depression Inventory and the Global Assessment of Functioning, can help to evaluate these issues, but these tools also are of limited use, as they do not address a patient's quality of life; also, many are quite time consuming

and therefore cannot be applied on a system-wide basis. Surveys on quality of life, such as Lehman's Quality of Life Inventory (QOLI), address quality of life issues, but these scores often do not correlate well with a patient's overall clinical status.^{37,38*}

The time frame required for an evaluation of systems of care to capture relevant outcomes is also unknown. The impact of changes in care may take months to years to fully develop. In fact, of several studies which have indicated that prepaid mental health care had a detrimental effect upon the overall functioning of schizophrenics, all found that their results attained significance only after one to two years of capitation.

Another important problem with current outcome indicators is that they do not acknowledge mental health expenses carried by other sectors of society, including patients' families. Mental health is somewhat unique among health care fields, because its failures manifest themselves in areas not traditionally associated with the provision of health care, such as homelessness and forensics. If outcome measures focus only on the services provided by a mental health care organization, they would not adequately assess whether a policy has succeeded or failed. Cutting funding and services to the mentally ill is analogous to squeezing a balloon - when one end is compressed, the rest expands. Unless the expanded parts of the system serving the SMI are assessed, the true costs of their care will be drastically underestimated.

In order to be useful in this era of limited budgets and managed care, outcomes indicators must therefore account for cost shifting and patients' clinical and

* * In the above cited studies, Lehman, et al. found that the QOLI was not predictive of rehospitalization in any domain except that of family relations and that psychiatric facility type was not predictive of specific QOLI

functional status while also measuring cost containment and service utilization. Since accountability for outcomes is an important goal of managed care, development of functional, practical indicators will be important in the coming years. In fact, organizations responsible for mental health are already struggling to develop outcome indicators that reflect this goal, yet are achievable given restricted budgets and time.

The National Alliance for the Mentally Ill (NAMI) recently issued its first "managed care report card," which it used to grade private behavioral health care companies. The report card evaluated the firms' performance in nine realms, including the areas of inpatient care, rehabilitation services, alternatives to traditional care, access to the most effective medications, engagement of patients and families in treatment plans, use of outcomes research, and assurance of stable housing.³⁹ All of the firms failed NAMI's report card, which makes it unlikely to appeal to many current providers of mental health care, but the high standards embodied in the report card should not be ignored; rather, they should be used to help plan necessary services for the future.

Measures Used in this Study

This study will evaluate the impact of managed care upon the lives of the severely mentally ill by looking at acute, intermediate, and chronic outcomes, and by exploring whether external indicators of inadequate care, in particular, homelessness, substance abuse, and high arrest rates, have changed since managed care's implementation in San Francisco. The measures need to address whether clients are successfully transitioned back into the community after a crisis, and whether, once

outcomes on most domains.

there, they are able to chronically maintain this level of functioning. Conversely, the measures also need to assess whether managed care has caused an increase in instability in the lives of these patients.

Systemic changes in acute care can be easily evaluated using managed care's standard evaluation tools. Aggregate numbers such as the average length of stay for hospitalizations and the number of inpatient and emergency room episodes per person accurately reflect the presence or absence of crises in a population, while they also can be employed as standard measures of inpatient and emergency care usage. In addition, since virtually all of the city's mentally ill in an acute crisis are cared for in the city's hospitals, these numbers will capture all of the crises of the desired population. The one exception is that these numbers do not represent acutely ill individuals in the county jail, since they are cared for on the jail psychiatric ward whose statistics are not included here.

The systemic changes in intermediate and long-term levels of care are more difficult to measure, because treatment programs and providers are scattered throughout the city. San Francisco's intermediate level of care consists of a series of graduated residential programs designed to integrate clients back into the community after a mental health crisis. Clients enter this level of care after hospitalization or upon diversion from hospitalization and then progress through one or more of these residences before ultimately returning to the community.

A variety of programs are incorporated into this category, including halfway houses, three-quarter-way houses, dual diagnosis programs, triple diagnosis programs (HIV, mental illness, and substance abuse), and programs run by the substance abuse

division of public health. Clients who no longer need acute care, but are not yet able to make the transition back into the community are placed in Institutes for Mental Disease (IMDs), locked facilities which function as subacute wards. Clients usually stay in these facilities for a few months to a year, while they stabilize, and then they are funneled into the system of residences described above.

The intermediate level of care may be assessed via the amount of clients using the system, their average lengths of stay, and the average number of residences each person has dwelt in, but unlike the categories of acute and chronic care, it is unclear what system-wide outcomes are desired. Positive outcomes are difficult to define in this category. A longer length of stay may be viewed as a success, as the client is committed to his/her treatment, or as a failure, since the client is unable to return to the community in a standard length of time. Similarly, if more clients are using the system, this may be viewed as a negative sign, since people are in crisis and needing extra supports, or as a positive sign, indicating that the system is responding better to those in need, especially if outpatient treatment is used to divert people from more costly hospitalizations.

In evaluating changes in long term, chronic care, an ideal assessment tool would include measures of quality of life, functional ability, and clinical status. Unfortunately, these are time consuming and difficult to obtain for a large population. For a system like San Francisco's, that serves almost 20,000 people, this would be impossible. A proxy measure for clinical and functional status must therefore be used.

Attainment and maintenance of stable housing can function as such a measure. In studies conducted by the California and San Francisco Departments of

Public Health, consumers of mental health services consistently identified housing as one of their primary needs.⁴⁰ A 1992 survey conducted by the San Francisco chapter of NAMI found similar concerns among the family members of the mentally ill. When asked to name the most important services they needed and were not receiving, housing was cited more frequently than any other type of service.⁴¹ Attainment of stable housing by the mentally ill is also associated with greater life satisfaction, as measured by Lehman's Quality of Life Index. When compared with their homeless counterparts, the housed mentally ill had significantly higher levels of satisfaction with their social supports, leisure time, family relations, finances, daily activities, and overall living situation.⁴²

Stability of housing may be assessed using statistics similar to those used to measure acute and intermediate levels of care, including the number of individuals in stable, long term housing and average lengths of stay. This category includes any stable community housing which can support a length of stay of at least several years. Clients living independently and with their families are counted here, as are those housed in facilities such as board and care homes, support services hotels, and supported coops. The latter two types of supported housing are generally geared towards rehabilitation, with the goal of eventual independent living, but stays in these facilities can last for several years, as compared to the stays in intermediate level facilities, which may last for months rather than years. Board and care homes, on the other hand, are typically used to house the more functionally impaired, those for whom independent living is unlikely.

Several other residential situations did not fit into the study's categories of acute, intermediate, or permanent levels of care. These include time living in jail, at the state psychiatric hospital, and on the streets or in homeless shelters. They are also evaluated, but separately. They are important to consider, as they are indications of the amount of cost shifting created by a total system of care.

Costs External to the System of Care

Housing and Homelessness

Literal homelessness and housing instability are a major problem for the mentally ill and their families. Homeless individuals and their families frequently cite mental illness and substance abuse problems as precipitants of their homelessness. In focus groups conducted with this population in San Francisco, people specifically noted that obtaining stable housing was quite difficult without adequate substance abuse treatment, mental health services, and crisis intervention support.⁴³

An estimated 30 to 40% of San Francisco's homeless population is SMI, numbering approximately 2500 in 1994.^{44*} A 1989 study of the SF homeless population found that 22.4% had received psychiatric services in the past year and 34.7% had a history of at least one psychiatric hospitalization. The same study also found that homeless people comprised 22% of the patients on hospital psychiatric wards.⁴⁵ A study compiled two years earlier noted that homeless or unstably housed people constituted 46% of the users of San Francisco's crisis clinics.⁴⁶

* The figure of 2500 SMI homeless people was obtained using the more conservative estimate of 30%.

Since most of the SMI rely on public funds as their sole source of income, rent is often unattainably expensive. In a city like San Francisco where the housing market is extremely tight, even the lowest of rents is out of reach of many mentally ill people. The mental health system is quite limited in its capacity to respond to these needs, overseeing approximately 2000 beds, a number unable to house even 12% of their clients.^{47, 48}

Once on the streets, the homeless mentally ill often fare worse than their mentally sound counterparts. They are frequently unable to access shelters because behavioral rules exclude them and they are then forced to live in parks or on the streets. Some actually choose this option, fearful of being victimized by other shelter residents. In San Francisco, this situation seems to have worsened over the past 10 years. In 1986, the mentally ill accounted for 21% of the shelter population and 32% of the "unsheltered" population. By 1993, they were only 5 to 15% of the shelter population but had grown to 59% of the "unsheltered" population. Since San Francisco's crackdowns on homeless people in 1997 and 1998, this situation has probably worsened.

Several recent studies have investigated the relationship between mental illness and homelessness, finding that the only consistent predictors of achieving stable housing were related to substance abuse recovery. In Washington, DC, Bebout et al. provided 122 homeless dually diagnosed adults with case management, integrated dual diagnosis treatment, and a continuum of available residences. Over the next 18 months, only active substance abuse, progress toward recovery from substance abuse, and quality of life were associated with stable housing. Residential

history and psychiatric symptoms, the other variables investigated, were unrelated to participants' housing status. Final housing status at 18 months was not predicted by any baseline variables, but was predicted by progress toward recovery at months 0 - 6 and 6 - 12 and by less severe drug use at months 6 - 12. Abstinence from drug use during months 6 - 12 corresponded with an increased likelihood of achieving stable housing that was three times that of nonabstainers. These results buttress earlier findings by the San Diego McKinney study that homeless mentally ill individuals who reported no alcohol or drug problems at the time of study entry were 2.04 and 2.66 times more likely, respectively, to maintain stable community housing.

Homelessness among the mentally ill is also associated with higher arrest and assault rates. A survey of mentally ill inmates at a New York City jail found that their rate of homelessness was 21 times higher than that of other mentally ill individuals in the city.⁴⁹ In the San Francisco County Jail in the early 1990's, 85% of the mentally ill inmates were homeless at the time of arrest. This number represents a substantial increase from the mid-1980's, when only 45% of mentally ill inmates indicated a current need for housing.^{50,51}

Jail and Mental Illness

Serious mental illness is quite prevalent in the San Francisco County Jail. In 1991, 25% of the inmates were current users of the city's mental health system at the time of their arrest. A history of previous psychiatric hospitalization was also fairly common among the inmates, characterizing 15% of the males and 23% of the females.⁵² Among homeless inmates, the amount of mental illness is particularly high, with a study from the mid-1980's finding that 38% had a history of psychiatric

hospitalization.⁵³ A 1982 study of inmates referred for psychiatric evaluation (in a different county's jail) revealed that 99% had a previous psychiatric hospitalization, 92% had arrest records, 80% exhibited "severe and overt psychopathology," and more than 75% met the criteria for civil commitment.⁵⁴

Nationally, 6 to 15% of the inmates in city and county jails and 10 to 15% of the inmates in state prisons are severely mentally ill.⁵⁵ Reports of large increases in the number of mentally ill individuals in the criminal justice system first appeared in the 1970's and these numbers have grown over the past 25 years.⁵⁶ In the Los Angeles County Jail, 15% of the inmates are severely mentally ill, leading one expert to label this huge jail "the largest mental health facility in the United States."⁵⁷

This situation is the result of two societal trends, the move toward deinstitutionalization in the mental health sector and the huge increase in prisons and prison sentences in the criminal justice sector. It is a situation which was eerily predicted by Penrose in 1939, when he theorized that a fairly stable number of people would be confined at any one time in modern industrial societies, whether in prisons or mental institutions. He then showed that in 18 European countries, an inverse relationship did, in fact, exist between the size of prison populations and mental hospital populations.⁵⁸

A history of recent arrest is correlated with several clinical factors in the mentally ill population. Arrest within the past 2 months is associated with increased risk of psychiatric rehospitalization.⁵⁹ If this arrest was for a violent crime, the arrested individual was likely to be lacking current psychiatric treatment, not taking medications, and actively using drugs or alcohol at the time of arrest.⁶⁰

Homelessness is fairly common among SMI inmates, as was illustrated earlier, but it is approximately twice as common among those charged with misdemeanors as among those charged with felonies.⁶¹ Since misdemeanor arrests are often for deviant behavior and not for the commission of actual "crimes," it appears that many mentally ill may face misdemeanor arrest for merely exhibiting the symptoms of their illness. This suggests that misdemeanor arrests may actually represent a sign of decompensation, indicating that more social supports are needed to maintain individuals successfully in the community.

Special Populations

Identifying unique subpopulations and their special needs can help in the planning and evaluation of mental health systems. Results may differ in surprising ways when certain groups are removed from the overall equation of care. These results can indicate whether specific people have suffered since the introduction of managed care, and can subsequently guide appropriate interventions. Some groups of people may have flourished since managed care's implementation; these success stories can also provide valuable information for future planning and possibly indicate underutilized resources or strategies that would benefit the entire system.

The identification of special subpopulations and evaluation of their needs can also help target treatments to those who will benefit most from them. For example, as discussed earlier, substance abusing mentally ill individuals are likely to evidence a set of problems in their daily lives very different from those of their non-substance using counterparts. Interventions such as housing programs would likely be less

important to a population without substance abuse than would other programs which were more relevant to their daily lives.

Recipients of Medicare and Medicaid

As noted earlier, a majority of SMI in the United States has their health care paid for by Medicaid and/or Medicare. In 1994, 60% of all psychiatric admissions were paid for by one of these programs.⁶² A survey of the San Francisco Chapter of the Alliance for the Mentally III found that 80.6% of members' SMI family/friends were receiving Medicare or Medicaid, and another 6% received some other form of public assistance.⁶³

Medicaid and Medicare are separate federal programs designed to help fund health care for disabled individuals and the elderly; as such, they are tied to the receipt of either Social Security Disability Income (SSDI) or Supplemental Security Income (SSI). SSDI is a type of insurance program for workers with a sufficient employment history; it covers either the workers themselves if they have become disabled, or covers their disabled spouses or adult children. It is funded through the Social Security Trust Fund and includes the provision of a monthly income supplement as well as medical insurance through Medicare. Persons who receive Medicare may also receive Medicaid, as long as they qualify for both.

In contrast to this, SSI is a type of social welfare program with no work history requirements, only limits upon earnings and total assets. In order to receive SSI, and its health insurance component, Medicaid, a person's income cannot earn more than a certain amount each month (\$500 in 1992) and his/her total assets cannot exceed a specified amount. SSI is funded through general federal taxes and state

moneys; its monthly stipend and Medicaid allocations are typically much less than those provided by SSDI/Medicare. For example, in 1991, SSI provided an allowance of \$335 per month while SSDI provided the much greater sum of \$587 per month.⁶⁴

Clearly, SSDI and Medicare offer better benefits for recipients; it is unclear whether this difference causes a significant variation in treatment outcomes when this group is compared to recipients of SSI/Medicaid. The two groups differ in their demographics: slightly less than 2/3 of the mentally disabled recipients of SSDI are male, while more than 1/2 of those on SSI are female. In addition, those on SSDI are of a slightly older average age than those on SSI.

The meaning of these numbers is open to interpretation. By virtue of compiling a sufficient work history, Medicare recipients may be less severely ill than those on Medicaid. On the other hand, completion of sufficient employment may simply mean that mental illness struck at a later age, after several years of working. In particular, this would be possible with schizophrenia, where age of onset can vary by up to 15 years. Another possibility is that recipients may receive Medicare and SSDI as disabled dependents of a working person. This could indicate the presence of strong family supports and thus may mean more resources for the Medicare recipient. Finally, the possibility exists that initially, recipients of Medicare exhibited no clinical differences from the Medicaid recipients, but that after time, they achieved a higher level of clinical functioning and better quality of life secondary to the better benefit package they receive.

Transients

Many mentally ill individuals live nomadic lives, never finding a permanent home, without constant work, and having few close relationships. The epidemic of homelessness among the mentally ill is but one symptom of this larger problem. A disabled individual who is constantly in motion is at a severe disadvantage, because ongoing ties to a doctor or health care professional are necessary to ensure that adequate care is being provided.

San Francisco is particularly prone to attracting wanderers, whether because of its mild climate, liberal reputation, or history of hippies and "free love" in the park. Transients may therefore be more plentiful in San Francisco than in other places, which makes a cohesive, responsive health care system quite difficult to organize. In addition, coordination of a client's services under managed care and monitoring of his/her outcomes are virtually impossible to achieve if the client is nowhere to be found.

In the mental health arena in particular, many transients are lost to the system due to incarceration, homelessness, or hospitalization in other regions. Others may be functioning well for a period of time and lose contact with their doctors. It is unclear precisely how the transient population differs from their more stably located counterparts - they may be less severely ill, and thus able to last for long periods without contact with the mental health system. On the other hand, they may be so severely disorganized that they are unable to keep appointments or maintain any type of "home base," and may differ from other mentally ill individuals mainly in their

lack of a strong support structure. They may also have higher rates of substance abuse or more severe substance abuse problems than other mentally ill people.

Assertive Community Treatment (ACT) Programs

ACT programs are intensive community-based programs for severely mentally ill individuals who are unable to maintain themselves in the community without comprehensive case management and close supervision. They specifically target clients who have frequent hospitalizations, drug noncompliance, and high use of emergency and other crisis services. The goal of an ACT program is to foster independent, community-based living for its clients, while improving their daily lives with a network of supports, including 24-hour on-call status, assistance with housing and finances, and frequent social contact. ACT programs have been tested in numerous clinical trials, whose results indicate that the programs improve perceived quality of life, increase independent living, increase housing stability, and decrease hospital admissions and emergency department visits for the severely and chronically mentally ill.^{65,66} ACT clients' treatment patterns, and in particular, their usage of acute services, will therefore provide an interesting contrast to that of their non-ACT peers in San Francisco's mental health system.

San Francisco began to use the ACT model with its mental health clients in early 1997 as a response to the very high costs of the system's "high users." The ACTs mission was to reduce overall costs while shifting the locus of care from an acute focus to a community-based outpatient setting. Criteria for client selection included the stipulation that any participant must have cost the department \$20,000 for two of the past three years. No preference was assigned to Medicare, MediCal, or

non-MediCal-eligible clients; all were equally likely to be offered the opportunity to participate.

Questions and Hypothesis

The overarching question guiding the formation of this study is whether the implementation of managed care in San Francisco will change the lives of the city's chronically mentally ill. The study's main hypothesis is that mental health managed care can reduce overall spending while maintaining or even improving quality of care in a county-based, publicly managed system. This will result from an increased focus on stable, long term care and simultaneous reduction of the use of costly hospital and emergency services. Furthermore, it is hypothesized that a county based system will be particularly invested in reducing cost shifting to other sectors of the government. It is expected to utilize its interdepartmental networks to encourage the development of dual diagnosis programs, stable, long term housing alternatives, and linkages between the mental health system and other public agencies, including the forensics system. Finally, managed care is hypothesized to encourage flexibility and innovation in planning and providing services; this will be investigated by examining the development of new programs, organizational changes, and issues of increased advocacy.

Levels of Care: Expected Changes

Expectations are that acute care will experience reductions in the use of hospitals and psychiatric emergency services. The total number of days in both forms of care is expected to decrease, as are admissions and lengths of stay. If clients were

admitted to a hospital ward from an emergency room, this transition would occur in less time than in previous years. In addition, as inappropriate admissions for substance abuse were eliminated, more substance abusers would be diverted to detox facilities.

The changes occurring in the acute care sector should appear quite soon after the implementation of managed care. Because acute care typically involves episodes with shorter lengths of stay and more episodes are possible in a short period of time, changes in usage patterns will manifest themselves in months, not years. Also, the fact that the changes involve service reductions and would save money makes them more likely to be implemented quickly in a time of budget cuts.

Managed care's expected emphasis upon long term, stable forms of care will appear more slowly, over the course of several years. It is somewhat more difficult to measure because long term services are community-based and scattered, involving many types of programs with different definitions of success. Measurement of success in this category is based on an absence of crisis and years of stable residence; ultimately, the system should see more clients experiencing longer lengths of stay in stable residences.

Changes expected in the intermediate system of care depend upon the time frame viewed. In the long term, it is unclear whether managed care will result in increased use of this system as a less costly alternative to hospitalization, or in decreased use, since these facilities consume resources which could otherwise be devoted to expanding long term care. In the short term, however, the intermediate level of care should see an upsurge demand for services as managed care's emphasis

on shorter hospitalizations creates an increased flow of patients needing to transition back to the community. Eventually, this pressure should diminish as the overall number of hospitalizations in the target population is reduced.

1996 as a crisis year

The above expectations must be modified somewhat due to the fact that the study population was in a time of crisis in 1996. As stated earlier, the sample was selected because they were in need of mental health housing and were presented to the "Bed Committee" at some point in 1996; the care given in the immediate aftermath should illustrate an appropriate response to clients in crisis, with an initial increase in acute care followed by a one to two year period of increased intermediate level care. By the end of the study in 1998, the population is expected to have returned to patterns typifying chronic levels of care.

Subpopulations

Several subpopulations mentioned earlier are expected to affect the results in predictable ways. For example, substance abusers, in general, experience more homelessness, more interactions with the criminal justice system, and more victimization. If they are removed from the overall sample, these problems should diminish in importance. In addition, as it is expected that managed care will promote the usage of detox programs and the development of dual diagnosis programs, the substance abusers may use less acute psychiatric services over time.

Medicare and MediCal clients are expected to increase in number as more clients become adequately linked to benefits in effort to generate revenue. In addition, if Medicare clients are higher functioning or are receiving better services than

nonMedicare clients, as discussed earlier, they would be expected to use less acute services, to live more independently, and to experience less overall homelessness and drug use.

At baseline, ACT clients are expected to be high users of acute services, with more drug abuse problems and more homelessness. Following implementation of the ACT program in 1997, their usage of hospital and emergency services would be expected to drop, although it is unclear how quickly this change will occur. More rapid linkage to substance abuse services is also anticipated, as is a decrease in housing instability and homelessness. In the long term, ACT clients are expected to achieve permanent housing at a faster rate than previously, although it is unclear how this rate should compare to their non-ACT counterparts.

Expectations of the transient population remain unclear. If they are truly "in transit" and are not living in San Francisco on the streets or in jail, then minimal change in usage patterns should result. If they live in San Francisco and are episodically affected by flare-ups of their mental illness, they may be difficult to distinguish from those "in transit"; however, if they live in San Francisco and are very low functioning, once they become coordinated and linked to appropriate resources, their usage of services may increase.

Methods

Sample

The sample consisted of 154 cases presented to the Bed Committee in the first week of Feb., March, April, May, June, July and Aug. 1996. These months were selected because they were the first months of the bed committee's existence. Clients were identified using the Bed Committee database; only San Francisco County clients were included, and each client was required to have at least one hospitalization prior to the episode leading to referral to the Bed Committee.

Most of the sample cases were referred to the Bed Committee for placement following a hospital stay or a stay in an institution, although some were referred as a diversion effort, in order to avoid a more costly hospitalization. Clients referred to the Bed Committee were among the more severely mentally ill individuals in the county system, as they all required publicly funded mental health beds, and not just outpatient treatment, following hospitalization.

INSYST, the billing and records system for Mental Health and Substance Abuse, and the Bed Committee database were the sources of most of the information used. Other sources included original Bed Committee referral forms, interviews with administrative staff, and departmental memos and reports. Study procedures were approved by the Division's committee on human research.

Procedures

Usage patterns were determined using INSYST and Bed Committee records. Aggregate acute care data included all hospitalizations and emergency services. Use of emergency services was defined as use of the Westside Crisis Center, the Mobile

Crisis Unit, or the Psychiatric Emergency Service (PES) at the San Francisco General Hospital. Hospitalizations included facilities both in and out of the county. Length of stay at emergency services was either 1 -day, if a client stayed overnight, or no days, if a client did not. Aggregate intermediate care data included IMDs, halfway houses, dual diagnosis treatment programs, substance abuse treatment programs, detox programs, and Acute Diversion Units (ADUs), short term subacute facilities in the community. Of the individual categories of intermediate care, "residential programs" included both halfway houses and ADUs, and "substance abuse" included detox, substance abuse, and dual diagnosis programs. Aggregate long term care data included board and care homes, support service hotels, coops, and living independently supported or with family. The category of "supported housing" included both support service hotels and supported coops.

Time in jail, at the state psychiatric hospital, and living on the streets or in shelters were all considered separately from the above categories of acute, intermediate, and long term care. Time at the state hospital was documented in INSYST, while jail and homeless time were more difficult to determine. The figures used were estimated from the Bed Committee database and Bed Committee referral forms, which include pertinent data on substance abuse, medical problems, contact with the criminal justice system, and housing needs. Jail time was constructed using the reports of social workers and jail aftercare specialists included on the Bed Committee referral forms; if an arrest during the study period was noted and at least one date was provided, this was counted as a stay in jail. The length of stay was conservatively determined using the above reports and service utilization data (i.e. - a

person was not in jail if they were attending outpatient therapy). The category of "homeless" included persons known to be living on the streets, in shelters, or in short term SRO hotels. Dates were conservatively estimated using the above reports and service utilization data. If dates could not be determined, or the homeless state could not be confirmed, a person's residence was categorized as "unknown." All "unknown" time was calculated by subtracting the total time a person's location was known from the number of days in a year (except in 1998, when 182 days, or half a year, was used).

Several of the above categories may under or overestimate the amount of time spent in a location. In particular, the number of people with time in jail is probably underestimated, since it was dependent upon the knowledge of the hospital social worker or whoever filled out the Bed Committee Referral Form. Also, clients with time in jail may have been considered "closed" by the mental health system, because a client is ineligible for MediCal while they are in jail. Portions of the study also underestimate hospitalizations. In 1994, prior to implementation of inpatient consolidation, only hospitalizations at the county hospital were recorded in INSYST; the number of hospitalizations in this year should be viewed as being artificially low. After inpatient consolidation, Medicare clients still lacked adequate documentation of private hospital stays, as these were not recorded in INSYST since the county does not bill for care provided through Medicare (INSYST is primary a billing system, not a tracking system). The number of hospitalizations for Medicare clients may therefore also be artificially low.

Subpopulations

Categorization of clients as Medicare, MediCal, or indigent was based upon their medical insurance as of August 1998 as documented by INSYST. INSYST was also used to document whether a client was included in an ACT program.

Categorization of clients as substance abusers was based upon treatment records in INSYST as well as comments on the Bed Committee form and was considered to be positive if either source indicated that a client had a past or present substance abuse problem. Contact with Target Cities was documented in one or both places as well.

Transience was determined by evaluating a client's treatment record and eligibility for San Francisco County Medicare/MediCal. If a client's eligibility status was unknown, and they had no contact with the mental health system during the year, they were considered closed for the year. If the client had no episodes for a majority of the year (i.e. - the first or last 10 months of a year) and any other episodes were few (less than three contacts), a client was considered closed for the year. For example, if a client had no contact with the mental health system in 1995 except for one emergency room episode on Dec 15th, this client was considered closed for the year. If a client was known to be eligible for Medicare or MediCal they were automatically considered to be "open in the system," even if they had no contact with the mental health system during the year.

Demographics

Clients' cost per year was obtained from INSYST records. Of note, the cost of stays in the state psychiatric hospital was not included in this figure. Clients' age and

sex were also from INSYST; all ages are from 1996, when the clients were originally presented to the Bed Committee. Documentation of any history of arrest or assault was mainly found in the Bed Committee referral forms.

Data Analysis

Data was compiled and analyzed using the Filemaker Pro database software. Tests of statistical significance were conducted using an independent sampling design; the student's t variable was calculated in a Filemaker Pro statistical program written by the author and the chi-square variable was calculated in Version 6 of the EpiInfo statistical program, using the StatCalc function.

Time Frame

The period of time covered began in Jan. 1994, one year prior to inpatient consolidation, and ended in June 1998, just after outpatient consolidation, which occurred in April 1998. Since the period of time examined in 1998 is only half of a year, some of the data is expected to lower than would occur in a full year's course. Where noted, these data have been "annualized" for the sake of comparison. This standardization was based upon changes in data from the first half of 1995 to the full year of 1995. Numbers were not simply doubled to obtain the values for the completed year, because this often did not accurately reflect reality.

Results

Results for the total sample are summarized in Table 1. The sample was 60% male, 38% female, and 1% transgender; the average age was 39.18 years old. 26% were known to have ever been arrested, and during the crisis year of 1996, 5% spent time in jail. 49% were known to have ever been assaulted, and 74% were current or past substance abusers.

Table 1
Full Sample (n=154)

Year	% Eligible Clients with Episode	Avg Episodes per Person	Avg total #Days per Year
Acute Care			
1994	65.9	3.68	21.33
1995	76.3	4.75	39.45
1996	80.9	5.71	45.20
1997	50.4	4.76	39.71
1998	41.8	3.69	26.30
Intermediate Care			
1994	52.7	2.08	156.1
1995	53.5	2.23	137.8
1996	82.9	2.26	117.4
1997	47.6	2.18	183.8
1998	34.6	1.71	161.8
Permanent Residence			
1994	11.0	1.00	323.2
1995	21.1	1.00	261.1
1996	40.1	1.00	169.8
1997	44.8	1.16	272.3
1998	52.5	1.08	312.7

Levels of acute care increased in 1996, and decreased thereafter to a level below that of the pre-managed care year of 1994. In 1994, 65.9% used inpatient or emergency services; this climbed to a high of 80.9% in the crisis year of 1996, and then rapidly descended to only 50.3% in 1997 and an estimated 41.8% in 1998, which is a statistically significant change from 1994 (see Table 2). Use of emergency

services also showed a marked decrease over the course of the study - whereas in 1994 and 1995, approximately 64% of the sample used emergency services, by 1997 only 46% used emergency services and by 1998, this had shrunk to an estimated 41.7%, a statistically significant change when compared to 1994. A high of 72.4% of the sample used emergency services in 1996, with an average of 3.75 episodes per person. Average number of emergency room visits per person showed minimal change over the course of the study, while average length of stay per emergency room visit decreased consistently each year.

The percentage of clients using inpatient services showed a similar decrease in the long term, while in the short term, it increased to a high of 75% in 1996. The long-term decrease was evidenced by a significant drop in usage to 27% of the population in 1998 from 64% in 1994. Average number of inpatient episodes per person showed minimal long term change but increased in 1996, while the total number of inpatient days (except in 1998) and the average length of stay for each hospitalization steady increased with each year of the study.

The intermediate care system also evidenced interesting short term and long term changes. In the short term, increasing percentages of people used intermediate level resources, reaching a high of 82.9% in 1996. On a longer-term basis, percentages of the sample using these services decreased by the end of the study to a level significantly below that of 1994, while the average number of episodes per person hovered around two throughout the study. In the short term, average total number of days in intermediate care reached a nadir of 117.4 days in 1996 and a peak of 183.8 days in 1997. In the long term, trends for total number of days in

intermediate level care are still unclear, although the number began to decrease by 1998, which may be indicative of a future trend.

Figure 1
Percentage of Eligible Clients in Each Level of Care
Whole Sample (n=182)

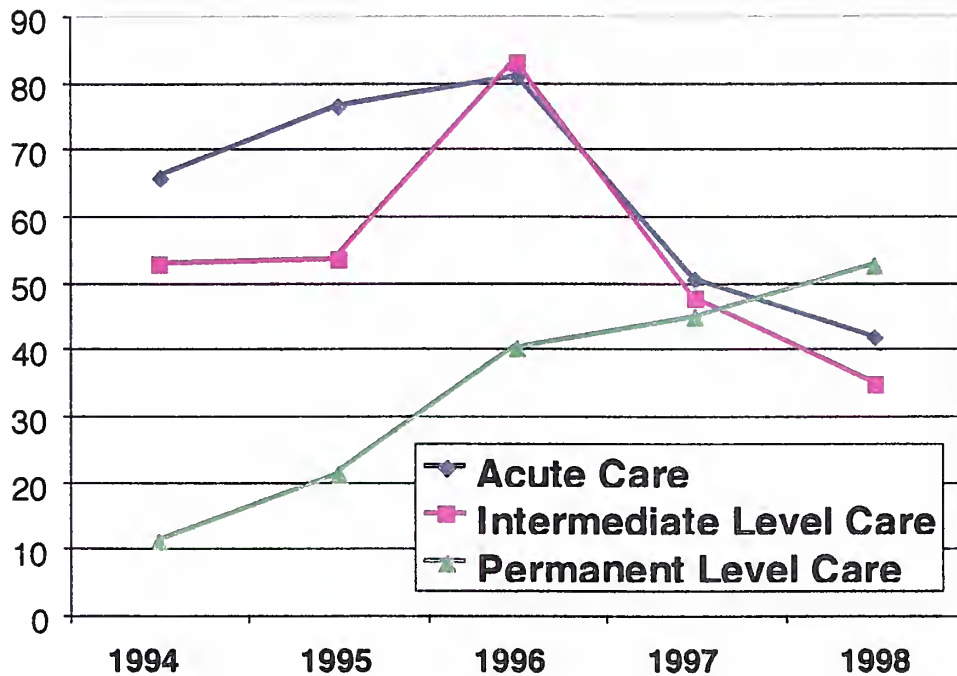


Table 2
1994 - 1998 Comparisons (X² statistic)
Entire Sample (n=154)

	1994	1998		Chi-Sq	p-value	
# in Acute Care	60	55	115	uncorrected	12.7	<0.000
# Not in Acute Care	31	77	108	Yates corrected	11.75	<0.000
	115	108	223			
# in Intermediate Level Care	48	46	94	uncorrected	7.08	0.008
# No Intermediate Level Care	43	86	129	Yates corrected	6.36	0.011
	94	129	223			
# in Permanent Residence	10	69	79	uncorrected	40.13	<0.000
# No Permanent Residence	81	63	144	Yates corrected	38.35	<0.000
	91	132	223			
# Using Psych Emergency	58	55	113	uncorrected	10.5	0.015
# No Psych Emergency Use	33	77	110	Yates corrected	9.63	0.002
	91	132	223			
# Hospitalized	58	55	113	uncorrected	5.86	0.015
# Not Hospitalized	33	77	110	Yates corrected	5.18	0.023
	91	132	223			

In terms of individual components of the intermediate level of care, while the percentage of the population using the IMDs remained fairly constant, their average length of stay decreased over the course of the study (See Appendices). An increased proportion of the population used halfway houses in 1996, but in 1997 and 1998 these numbers rapidly declined to below those of the pre-managed care and early managed care years of 1994 and 1995. Residential substance abuse programs had a drop in the proportion of the population using them in 1997 and 1998, although the total number of days in substance abuse programs steadily increased with each year of the study.

The percentage of people in permanent stable residences climbed steadily each year, from a low of 11% in 1994 to a significantly different high of 52.5% by 1998. The impact of 1996, if any existed, on these numbers was to speed the rate of increase. The total number of days spent in stable residences dipped in 1996, when

patients spent more time in higher levels of care, but climbed back to its pre-crisis levels in 1997 and 1998. Of the individual components of the long-term care category, supported housing showed an increase in the proportion of population served in 1996, but this actually began to decrease by 1998. The population living in board and care homes consistently increased in size throughout the study, while no obvious changes were seen in the long-term amount of people living independently or with their families.

Homelessness seemed to peak in the crisis year of 1996, striking approximately 23% of the population, although on a long-term basis, around 9% of the sample was homeless per year. The proportion of the population in unknown living conditions steadily decreased over the course of the study from a high of 69.2% in 1994 to a low of 25.8% in 1998.

Subpopulations:

ACTs

The population enrolled in ACT programs was slightly younger and more female and averaged a much higher cost per year than those not enrolled in ACTs. A smaller percentage of those in ACTs were substance abusers (69% versus 77%), but this was not statistically significant. A much higher proportion of substance abusers in ACTs had contact with Target Cities than did those not in ACTs (59% versus 38%), a fact which did prove to be significant (uncorrected chi-square = 6.95, $p=0.008$; Yates corrected chi-square = 5.90, $p=0.015$).

Whereas the percentages using acute care existed differed little between the two groups prior to 1996, a much higher percentage of those in ACTs used acute

services afterwards. In 1994, the proportions of ACT and non-ACT clients using acute services did not differ significantly, whereas the proportion of ACT clients using acute services in 1998 (57.3%) was significantly more than that of non-ACT clients (31.4%). (See appendices for statistics). The proportion of non-ACT clients hospitalized was significantly lower than that of the ACT clients for both 1994 and 1998, whereas the proportion using emergency services was only significantly lower in 1998. Over the course of the study, both groups consistently reduced their use of emergency and hospital services, although the average length of hospitalizations increased fairly steadily over the 4 years.

A larger proportion of the ACT group used some intermediate care than did the non-ACT group in all years of the study. Tests of statistical significance of difference were only performed for the years 1994 and 1998, but in both these years, the differences achieved statistical significance. Over the study period, the proportions of both groups using intermediate level services increased in 1996 and 1997 and subsequently decreased in 1998 to numbers below those of 1994. The number of intermediate level episodes per person did not show a clear pattern for either group, but the total number of days in intermediate care steadily increased for the non-ACT group from 94.6 days in 1994 to 172.8 days in 1998. No such pattern was evident in the ACT group, which had a peak of 215.5 days intermediate care in 1997 immediately followed by a nadir of 157.7 days in 1998. The ACT clients used halfway house programs and IMDs consistently more than other clients, and substance abuse programs consistently less (despite their higher Target Cities contact rate).

Fewer members of the ACT group ultimately achieved stable, semi-permanent housing by 1998 than did those in the non-ACT group, although they were catching up. Initially, 16.7% of non-ACT clients and only 4.7% of ACT clients were known to be in a stable living situation., but by the end of the study, 55.8% of non-ACT clients and 47.6% of ACT clients found a permanent or semipermanent home. Each year from 1994 through 1998 (except 1996), a higher proportion of ACT clients were homeless than were non-ACT clients, while those ACT clients who did achieve stable housing were commonly placed in board and care homes. Non ACT clients were often placed in supported housing.

Table 3
ACT Subpopulation

<u>Year</u>	IN ACT	NOT IN ACT
	<u>% Eligible Clients with Episode</u>	<u>% Eligible Clients with Episode</u>
Acute Care Episodes		
94	70.0	62.5
95	77.6	75.4
96	83.0	79.8
97	60.4	44.4
98	57.3	31.4
Intermediate Care Episodes		
94	74.4	33.3
95	65.3	44.6
96	96.2	75.8
97	79.3	28.9
98	62.3	16.1
Permanent Episodes		
94	4.7	16.7
95	10.2	29.2
96	32.1	44.4
97	35.9	50.0
98	47.6	55.8

Figure 2
Acute Care

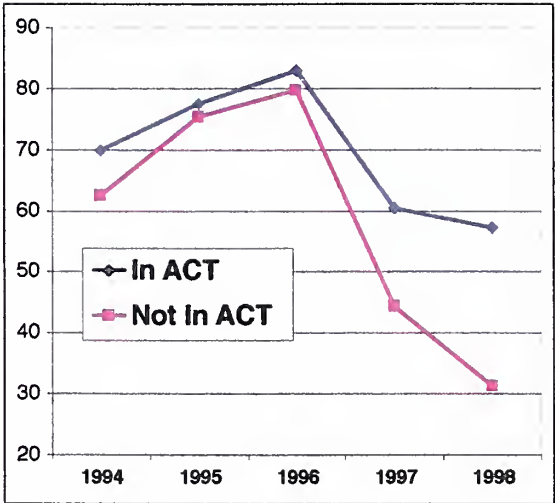


Figure 3
Intermediate Level of Care

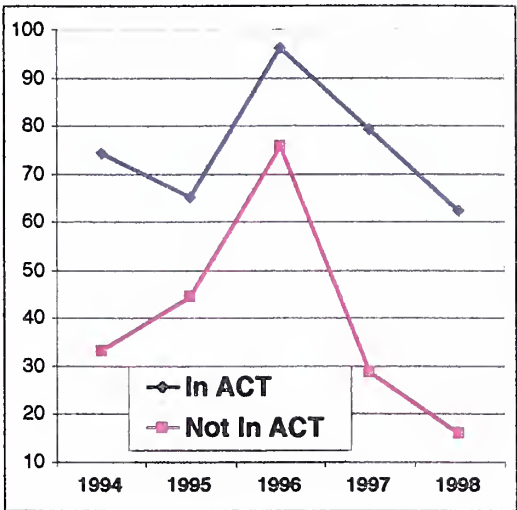
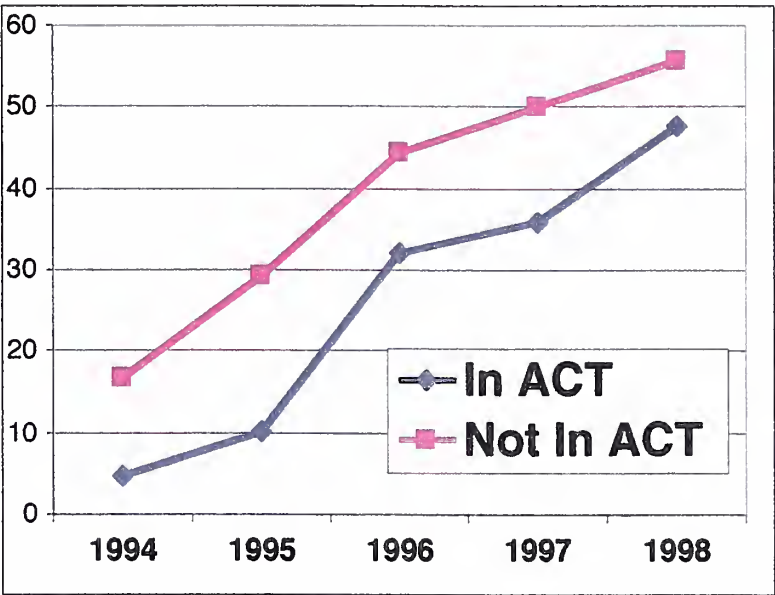


Figure 4
Permanent Level of Care



Substance Abusers

Demographically, the substance abusers had a lower average age and a higher proportion of males than did nonusers (See Appendix). Both of the transgender individuals were also substance abusers. All of clients ever victimized and almost 90% of those ever arrested were also in this category, as were all of the clients admitted to Napa and almost all of the clients with any periods of homelessness.

A similar proportion of both groups, substance abusers and nonusers, used acute services prior to 1998, but the substance abusers' total number of days in acute care was consistently lower each year except 1997. Prior to 1998, substance abusers were more frequent users of emergency services than nonusers, although both groups used inpatient services in similar proportions. In 1998, usage patterns seemed to change for the substance abusers: the proportion of this group using both emergency and inpatient services dropped, and the number of emergency room episodes per person dropped as well. Intermediate levels of care were consistently used by higher proportions of substance abusers than nonusers, but the nonusers had longer average lengths of stay and higher total number of days in this level of care, except in 1998. A far higher proportion of nonusers spent time in IMDs, while a far lower proportion of this group stayed in halfway houses. As the study period evolved, substance abusers had progressively longer lengths of stay in residential and substance abuse facilities.

Far fewer dually diagnosed clients achieved stable, permanent housing than did nonusers, and this was consistently reflected by much higher rates of homelessness for the users. They had much higher rates of placement in supportive housing, while their nonusing counterparts had higher rates of placement in board and

care homes; rates of independent living/living with family were similar for both groups.

Table 4
Substance Abuse Subpopulation

SUBSTANCE ABUSE		NO SUBSTANCES
<u>Year</u>	<u>% Eligible Clients with Episode</u>	<u>% Eligible Clients with Episode</u>
Acute Care Episodes		
94	66.7	64.0
95	77.4	73.3
96	80.4	82.5
97	49.5	52.5
98	35.2	58.1
Intermediate Care Episodes		
94	54.6	48.0
95	56.0	46.7
96	83.9	80.0
97	49.5	42.5
98	36.5	30.1
Permanent Episodes		
94	7.6	20
95	19.1	26.7
96	36.6	50
97	41.7	52.5
98	48	63.6

Figure 4
Acute Care

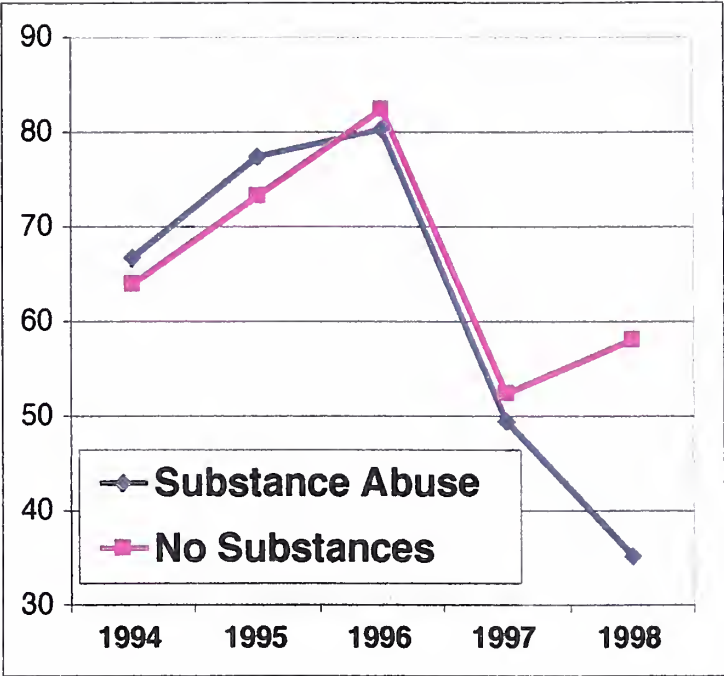


Figure 5
Intermediate Care

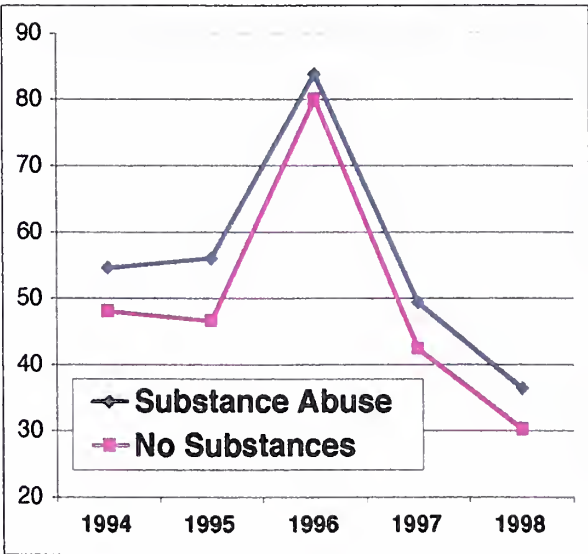
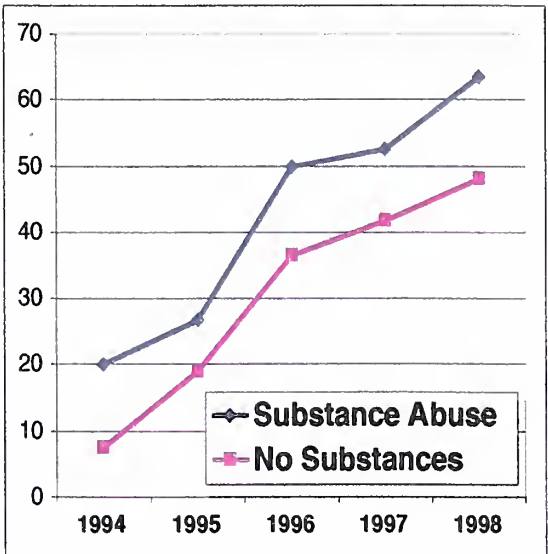


Figure 6
Permanent Level of Care



Transients

The transient clients did not differ greatly from the nontransients in terms of age, sex, arrest rates, or assault rates. Slightly more transients were substance abusers than nontransients (not statistically significant), and a slightly higher proportion of transient substance abusers had contact with Target Cities workers than nontransients. In general, the transients cost the mental health system less money and used less acute care resources than nontransients.

The proportion of transients using acute services was higher than that of nontransients in 1994, 1995, and 1996. After 1996, the opposite was true - a lower proportion of transients used acute services. Both transients and nontransients had reductions in usage of acute services over the course of the study, but the reductions were much greater in the case of the transients. The total number of inpatient days was much smaller for the transients each year, although the average length of stay per hospitalization was only dramatically lower in 1998. In the crisis year of 1996, transients used emergency services much more than nontransients and much more than was typical of their overall average usage rate. The nontransients, on the other hand, did not show as marked an increase in usage of acute services during this time.

Intermediate care facilities housed a higher proportion of transients, but their average lengths of stay and total number of days were shorter than for nontransients. Stable, long term residence was achieved by a higher proportion of the transients, who were more likely to be placed in supportive housing and less likely to be placed in board and care homes than nontransients.

Table 5
Transient Subpopulation

<u>Year</u>	STABLE	TRANSIENTS
	<u>% Eligible Clients with Episode</u>	<u>% Eligible Clients with Episode</u>
	Acute Care Episodes	
94	65.1	75.0
95	72.3	87.1
96	74.7	88.4
97	51.8	48.3
98	48.2	31.0
	Intermediate Care Episodes	
94	51.8	62.5
95	54.2	51.6
96	79.5	87.0
97	49.4	45.0
98	38.3	28.5
	Permanent Episodes	
94	9.6	25.0
95	18.1	29.0
96	41.0	39.1
97	42.2	48.3
98	50.5	55.7

Medicare Recipients

Medicare recipients averaged an older age than their non-Medicare counterparts, had a slightly higher percentage of females, and average a lower cost per client in all years except 1998 (see Table 6). They were less likely to be arrested, and although their proportion of substance abusers was roughly equal to that of non-Medicare clients, they were much less likely to be contacted by Target Cities. No Medicare clients were jailed during the study, and their rates of homelessness were much lower than those of non-Medicare clients during 1995, 1996, and 1997, the years of the crisis period.

Data on usage of acute services by Medicare recipients must be examined with caution, because incomplete information exists about their hospitalizations in private facilities. Nevertheless, the data is rich enough to draw some tentative conclusions. In general, Medicare recipients used less acute services than did their non-Medicare counterparts. Non-Medicare clients had more episodes of inpatient and emergency care per person, and a higher total proportion of MediCal clients used acute services than did Medicare clients.. The total number of inpatient days was higher for non-Medicare clients, but after implementation of MediCal inpatient consolidation in January 1995, average length of stay became comparatively higher for Medicare clients than for MediCal clients.*

Similar percentages of MediCal and Medicare clients used intermediate care services over the 5 years studied, but MediCal clients consistently had more episodes

* Indigent clients are considered MediCal clients for the purposes of this discussion, since both they and MediCal clients are managed similarly by the county.

per person than Medicare clients. A smaller percentage of Medicare clients stayed in substance abuse programs, but no other obvious trends emerged in terms of placement differences. Of those living in halfway houses, Medicare clients consistently had higher average lengths of stay.

Permanent, stable residences were achieved by 50% of each group by the end of the study. The proportion of Medicare recipients in supportive housing was double that of the non-Medicare recipients while a slightly lower proportion of Medicare recipients lived in board and care homes than did nonMedicare recipients.

Table 6
Medicare Subpopulation

<u>Year</u>	MEDICARE	NO MEDICARE
	<u>% Eligible Clients</u> <u>with Episode</u>	<u>% Eligible Clients</u> <u>with Episode</u>
Acute Care Episodes		
94	71.9	62.7
95	75.0	77.1
96	79.7	81.7
97	41.4	56.4
98	31.9	48.3
Intermediate Care Episodes		
94	62.7	54.2
95	77.1	54.3
96	81.7	81.7
97	56.4	47.0
98	48.3	37.5
Permanent Episodes		
94	6.3	13.6
95	18.2	22.9
96	44.1	37.0
97	48.3	42.4
98	52.5	52.5

Discussion

In general, San Francisco mental health seems to have successfully shifted its focus from acute to long term care for the chronically mentally ill without a subsequent increase in use of crisis services, jail services, or homelessness. Overall usage of acute care was successfully decreased, and recidivism seems to have decreased as well, because a smaller percentage of the population required hospitalization by the end of the study. Among those who continued to use inpatient services, however, the average number of episodes per patient was not reduced. Similarly, although the average length of each hospitalization and total number of inpatient days actually increased during the study, the decreased proportion of people using inpatient services after 1996 probably meant that many less acutely ill clients were no longer being hospitalized. As a result, many shorter lengths of stay would be removed from calculation of the average. Prior to 1996, increases in lengths of stay may have indicated that patients' clinical conditions were worsening. (During the same time period, the average length of stay for all psychiatric hospitalization decreased, so these patients deviated from the system-wide average.) Also, as more clients moved into the intermediate care system and filled available beds, longer lengths of hospital stays may have meant that increasing gridlock in the housing system prevented clients from being discharged in a timely manner.

The intermediate care system evidenced changes more difficult to interpret. As predicted, more clients used these services in 1996 and 1997, but by the end of the study, no clear long-term pattern had yet emerged. The fact that approximately two episodes per person remained a fairly constant number throughout the study may

indicate that stays in two progressively less acute facilities are needed to transition patients back to more independent living conditions. Among intermediate level programs, the decreasing length of stay at IMDs is important to note, because it may mean that the system is successfully transitioning clients back to the community more rapidly. This would support the decision made to eliminate 80 IMD beds upon the opening of the city's Rehab Facility. Also noteworthy among intermediate level facilities is the increase in the average length of stay in halfway houses and substance abuse programs after 1996. This may be a short term finding, related to recovery from the crises of 1996, or it may represent a longer term trend, because facilities are better meeting patients' needs with an increased emphasis on integrating mental health and substance abuse.

A large proportion of the sample achieved stable, long term housing by 1998, further supporting the hypothesis that managed care would efficiently shepherd the system's transition to a less acute, more chronic focus. The increasing use of board and care homes to house the sample population represents an effective expansion of an existing resource. It may be that many chronically mentally ill people need this type of support and structure to live successfully in the community. Supported housing, which had an initial increase in usage in 1996, ultimately did not contribute as much to stable housing than did board and care homes. Given supported housing's rehabilitative focus, this may mean that people successfully transitioned to independent living after a one to two year stay in these facilities. On the other hand, these numbers may also mean that clients could not successfully complete a stay at

supported housing because it was too independent and unstructured for their level of functioning.

Trends in homelessness and jail time are difficult to interpret, given that most people had a large amount of unknown time in the first three years of the study. The data should therefore be viewed with some skepticism, as the actual values for homelessness and jail time are probably much higher than those recorded in the study's early years. In later years, as data collection improved, the amount of unknown time and number of people involved diminished greatly.

Subpopulations

The functional status of the various subpopulations in the study could often be appraised based upon the type of facility in which they were placed. Higher functional status was associated with the use of community-based facilities with a focus on rehabilitation and reintegration into the community, whereas lower functional status was associated with institutions more concerned with creating a stable, secure environment for their residents. Short term, acute measures sometimes did not differentiate between two subpopulations, and varying levels of severity only became apparent during more stable periods. IMDs and board and care facilities tended to be used for lower functioning individuals, whereas the opposite was true of supported housing, substance abuse facilities and halfway houses.

The data on ACT clients indicate a long-term propensity for higher acuity and lower functional ability. In the crisis year of 1996, both ACT and non-ACT clients used similar amounts of acute care, but in the years afterwards, the use of acute services declined rapidly for the non-ACT clients. Chronically, the ACT clients

consistently displayed lower levels of functioning, with higher rates of homelessness, lower rates of stable housing, and a higher likelihood of being placed in a board and care home. ACT clients may be less willing than others to agree with and work towards a treatment plan. This would help to explain their inability to achieve stable housing despite the best efforts of the ACT staff, who actively attempt to find housing for their clients. This might also help explain their low use of substance abuse programs, despite their high Target Cities contact rate. On the other hand, mental illness may play a more prominent role in the ACT clients pathology, and thus they may need programs more oriented towards mental health than substance abuse.

Dually diagnosed clients in the sample seem to have a greater potential for functional independence than the non-substance users. Their number of days in acute care was lower than that of the non-substance users, and they were more likely to use the "higher functioning" intermediate and permanent care facilities. They did, however, have higher rates of homelessness. Interestingly, in 1998, usage patterns changed for the substance abusers: the proportion of this group using both emergency and inpatient services dropped, and the number of emergency room episodes per person dropped as well. These usage changes may be related to stricter gatekeeping standards for substance abusers and subsequent changes in the substance users' attitudes and behavior. For example, the substance abusers may have been less likely to go to the emergency room after a crack binge if they knew that they would not spend the night in the hospital. On the other hand, since many people are brought to

emergency services involuntarily, the 1998 reductions in usage may actually reflect clinical improvement and less need for involuntary interventions.*

The subpopulation of transient individuals appear to be a higher functioning group than nontransients, although the two groups did not differ on any demographic variables other than a slight difference in rates of substance abuse. This may, in fact, be a reason for their transience, as they may be capable of long periods of time without psychiatric care. On the other hand, jail cannot be excluded as an equally good reason for their transience, even though their arrest rate was no different than the nontransients. The transient group was typically placed in programs with more independence and less restrictions, and eventually, a higher proportion of the group attained stable housing. Their average length of stay in halfway houses and substance abuse treatment programs grew progressively longer after 1995, perhaps indicating that their needs were better met by programs in the latter years of the study. Again, this may be due to the integration of dual diagnosis concepts into both mental health and substance abuse treatment programs.

As predicted, Medicare clients functioned at a slightly higher level than nonMedicare clients, although it remains unclear whether this would be true if they were stripped of their additional financial and medical resources. No Medicare clients were jailed during the study, and they had much lower rates of homelessness. Both of these statistics may be related to the fact that Medicare recipients receive a larger monthly check (SSDI) than do MediCal recipients (SSI) and are therefore better able

* The way to resolve this would be to assess whether the involuntary admission status of substance abusers has changed over time.

to pay rent. Medicare clients were also much less likely to be contacted by Target Cities, perhaps because DMS was not responsible for authorizing or paying for their hospitalizations.

Future

The future of mental health in San Francisco will depend upon effective management of several key areas: dual diagnosis, housing shortages, and data management.

Clearly, much of the current success of the San Francisco managed care plan is due to reforms in the mental health housing system, including prioritizing the most expensive clients, the high users and severely mentally ill, and establishing central authority via the bed committee. The mental health housing supply is not unlimited, however, and many more clients need housing than can be provided. When the allocation of housing is determined by the cost of a client to the system, ethical questions jump to the fore. On the other hand, in an era of limited budgets, housing must be rationed to those most in need. A high use of services can demonstrate such a need, and cost can estimate service usage.

The San Francisco mental health team has addressed this situation by allocating more resources for community based housing. When the Rehab Facility opened in 1997, 80 IMD beds were gradually closed and the clients were to be reintegrated into the community. Although the IMD beds were closed to create more money for residential care in San Francisco, the influx of 80 people into the community over a period of less than a year only served to compound the pressure felt by the housing system. To help alleviate this pressure, in 1997-98, 65 residential

care beds were added to the system and in 1998-99, 25 more beds will be added as well. This will create a total of 472 mental health beds in the city to serve what at last count was approximately 19,000 clients.

Future plans for housing involve sharing funds with substance abuse, as discussed below, but minimal numbers of beds can be added unless more IMD slots are closed or another funding source is found. It is quite frustrating for staff members to cope with the limits of the system. As one person noted, "We seem to have the belief that residential care can work with these (more complicated) clients without more funding and enriched resources, and yet we often fund other levels of care that, while they provide benefits, do not seem to provide the lasting system benefit that residential care provides."⁶⁷

If reforms are successfully implemented, and use of costly acute care remains relatively low, then some additional resources may enter the system. For example, a recent study found that the 35% of Medicaid clients who were the heaviest users of inpatient services accounted for 75% of the total inpatient expenses. If it were possible to target these users and reduce their rates of recidivism, some money could be diverted to other parts of the system. This study shows that recidivism can be greatly reduced among the chronically mentally ill, which may mean that more resources will eventually become available for others. Unfortunately, the mental health system can never be secure that new budget cuts will not be introduced which would negate the savings mentioned above.

The current system of treatment for dually diagnosed individuals has many more resources than it did at the beginning of managed care. A fairly high number of

new outpatient and inpatient programs for the dually diagnosed have been created, but the demand for services still remains much higher than the supply. Waiting lists of up to two months are common, and by the end of the waiting period, many people have disappeared or are using substances again. In addition, many programs require that clients have spent 30 days clean and sober prior to entrance, and clients have no access to facilities where they can go in the interim.

Active substance abuse is associated with many of the negative consequences of mental illness - homelessness, arrest, assault, etc.- but we do not yet understand how best to help clients cope with this issue. In this study, residential substance abuse treatment programs were examined. These appear to be most used in times of crisis, but when individuals have recovered from the crisis, it is unclear whether continued substance abuse counseling is occurring, and if so, whether it is effective in preventing relapse. Research has shown that the process of quitting an addiction involves several stages of mental preparation, including the precontemplative, contemplative, action, and maintenance stages. In fact, mental progression towards the action phase of quitting drugs was associated with a significantly higher rate of stable housing in a study of homelessness among the dually diagnosed.

The harm reduction model may be better able to meet the needs of some of the most chronic users of drugs and alcohol. This model takes the point of view that some reduction of substance abuse is better than nothing, and can actually lead eventually to abstinence. Currently, no facilities serving the dually diagnosed in San Francisco operate under a harm reduction model, but for clients evicted from the abstinence

based programs, this type of program may help them break their addiction while keeping them stably housed and out of crisis.

A fairly new Twelve Steps Program called DRA (Dual Recovery Anonymous) may be a valuable addition to residential programs. It is designed to serve dually diagnosed clients who "need their medications, but are dependent on alcohol or other harmful substances"⁶⁸ because traditional programs like AA often shun the use of any psychoactive substances, creating a dilemma for the mentally ill client who needs his/her drugs. The San Francisco chapter of the National Alliance for the Mentally Ill has begun to establish some DRA groups in the city, with the help of the head of the division of mental health.

In 1996, during the study period, SSI and MediCal benefits were disallowed for anyone considered disabled due to an addiction. An intensive effort was begun by both mental health and substance abuse services to have all applicable substance abusers declared disabled due to mental illness so that these resources would not be lost. Initial analysis indicated that of a sample of 496 substance abusers studied who were to lose SSI, 282 met the criteria for mental illness and requalified for benefits, 96 were rejected, and 118 were awaiting a decision.

As a result of these changes, mental health and substance abuse administrators have developed a novel way to serve these new clients while maximizing revenues for both systems. Money allocated to substance abuse services from the city's General Fund could be leveraged to create dual diagnosis programs for MediCal clients by matching these dollars to federal MediCal funds. This plan was estimated to provide the departments with \$700,000 of extra revenue in 1997-98 to be used for sorely needed

dual diagnosis treatment programs and to develop a case management team to follow high cost users of both systems on a transitional basis.

The broadened partnership between mental health and substance abuse is one example of the type of flexibility that can result from managed care. The ACTs are another example, being only a suggestion on paper until inpatient consolidation, the bed committee, and the high user reviews demonstrated that they were needed by the system to help manage its clients. Creative use of funds has occurred on a large scale, as demonstrated above, and also on a smaller scale. The Discharge Coordinator, a nurse who works with hospitals in planning for patients' discharges, has a "slush fund" allotted her so that she can pay for any necessary unbudgeted services, such as transporting an unreliable client to a treatment program upon discharge from the hospital.

Several broader questions are left unanswered by this study. No one seems to know much acute care is appropriate in the case of the chronically mentally ill. Reductions in lengths of stay seem to have stabilized somewhat in San Francisco since the first year of inpatient consolidation. If length of stay is reduced any more, will clients decompensate and use more acute services? To whose standard of acute care should mental health systems compare themselves?

The question of funding for mental health remains a critical one for San Francisco and all of California. A bill to cut the Vehicle Licensing Fee, which was increased in 1991 to fund Realignment, has just passed in the state legislature. Revenues from the tax are reserved for the use of cities and counties, representing 25% of county revenues and 10% of city revenues.⁶⁹ This tax cut will eliminate

approximately four billion dollars from the state coffers, leaving counties with no guaranteed source of funding for health care.

A final question deals with the issue of community benefits: does a publicly funded mental health plan create benefits for the broader community outside the world of mental health? The San Francisco Plan seems to have accomplished some of this. It helped substance abusers who lost their SSI benefits regain services through mental health. It has advocated for affordable housing, an issue affecting the entire city, and provides support for consumers and their families via the Office of Self Help, an advocacy office located within the division's offices. Consumers of the system also work in the office, answering phones and running the 5th floor cafe. On a more grandiose level, since many of the division's clinical efforts involve clients who are homeless, if managed care could even help make a dent in the city's huge homeless problem, the city would be forever grateful.

Methodological Issues

Several problems became evident in the implementation of this study. First, more than half the time tracked in the first two years of the study was categorized as unknown. If it were known how this time was spent, some conclusions of the study might change. Second, the study drastically underestimated cost shifting by underestimating the amount of jail and homeless time, and by not counting any costs borne by the families of the mentally ill, who typically shoulder much of the burden caused by cost shifting. Third, the categorization of clients as substance abusers made no attempt to differentiate between active use and past use. This would have provided an interesting and perhaps more valuable set of subpopulations to compare. Also,

since outpatient care for substance abuse was not measured, the study undercounted the number of clients receiving substance abuse treatment, especially in the "post-crisis" years of 1997 and 1998 when aftercare treatment would be expected on an outpatient basis.

The study lasted for 4 1/2 years, only 3 1/2 of which were considered to be managed care. A longer study period would have been more able to capture significant changes in the chronic data, including the possible loss of function among the schizophrenics. A longer time frame would also have captured the system's entire transformation to managed care, which was not yet complete at the end of the investigation. This study, therefore, describes the system at a crucial point in its transition, the watershed period when managed care is introduced and implemented.

As noted earlier, rapid changes continually swept through the mental health system over the course of the study. Many of the changes attributed to managed care may, in fact, have been due to these other forces. Such developments as the cutting of SSI for substance abusers, the national overhaul of welfare programs, and the ongoing housing crisis among low income people in San Francisco which occurred during the study definitely had an impact upon the city's mentally ill. It remains unclear how much these changes influenced mental health policy and practice, and whether they were ultimately of more import than the presence of managed care.

Conclusions

Since managed care's implementation in 1995, statistically significant changes have occurred in the proportion of SMI individuals using acute, intermediate, and permanent levels of care. Congruent with systemwide goals, less SMI patients are using acute and intermediate level services, and more are stably housed in permanent or semi-permanent settings. This shift seems to have occurred without immediate detrimental effect upon the clients affected, as their use of emergency services has continued to decline over the course of the study. Whether these trends will continue remains unknown, and should be the subject of further investigation. Future research should also focus on the question of whether and how much of these changes are due to the consolidation of economic and administrative power wrought by managed care.

Endnotes

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Appendices

Summary Data

1. Entire Sample
2. Medicare Subpopulation
3. Subpopulation Without Medicare
4. Subpopulation In ACT
5. Subpopulation Not in ACT
6. Substance Abusing Subpopulation
7. Non Substance Abusing Subpopulation
8. Stable Subpopulation
9. Transient Subpopulation

Statistics: Statistically significant findings

1. ACT/Non-ACT Comparisons, 1998
 ACT/Non-ACT Comparisons, 1994
2. Stable/Transient Comparisons, 1998
 Medicare/No Medicare Comparisons, 1994
 Substance Abuse/No Substance Abuse Comparisons, 1998

Entire Sample (n=154)

	<u>%Elig Clients with Episode</u>	<u>Avg # Episodes per Person</u>	<u>Avg total #days/yr</u>
Acute Care (hospital + Psych Emergency Services)			
94	65.93%	3.68	21.33
95	76.32%	4.75	39.45
96	80.92%	5.71	45.20
97	50.35%	4.76	39.71
98a	41.82%	3.69	26.30
**	30.30%	2.88	22.98

avg age 39.18		
male	93	60%
female	59	38%
trans gender	2	1%

<u>Psych Emergency Services</u>		<u>avg LOS</u>		
94	63.74%	2.66	0.66	1.76
95	64.91%	3.16	0.62	1.96
96	72.37%	3.75	0.53	1.97
97	46.15%	3.17	0.44	1.38
98a	41.67%	2.67	0.33	0.87
**	29.55%	2.05	0.33	0.67
<u>Hospitals</u>		<u>avg LOS</u>		
94	42.86%	1.72	17.58	30.21
95	66.67%	2.36	18.37	43.28
96	75.00%	2.54	18.42	46.86
97	37.76%	2.48	20.66	51.26
98a	27.27%	1.90	23.27	44.26
**	17.42%	1.52	25.51	38.83

Ever arrested	40	26%
Ever assaulted	75	49%
Ever abusing substances	114	74%
% of Ever Abusing Substances contacted by Target Cities		
45%		

Intermediate Care (IMDs, halfway houses, acute diversion units, substance abuse residential treatment, detox)

94	52.75%	2.08	156.06
95	53.51%	2.23	137.77
96	82.89%	2.26	117.42
97	47.55%	2.18	183.83
98a	34.64%	1.71	161.82
**	27.27%	1.36	106.73

	<u>Total #Eligible</u>	<u>Avg cost per year</u>
94	91	\$27,849
95	114	\$42,543
96	152	\$52,819
97	143	\$42,049
98a	132	\$25,388
**	132	\$12,694

Permanent Residence (board & care, supported housing, indep living, living with family)

94	10.99%	1.00	323.17
95	21.05%	1.00	261.08
96	40.13%	1.08	169.76
97	44.76%	1.16	272.25
98a	52.50%	1.08	312.66
**	50.00%	1.08	161.93

** Note: These figures denote the actual results for the first half of 1998 prior to correction for annualization.

Medicare Recipients

(n=59)

	<u>%Elig Clients with Episode</u>	<u>Avg # Episodes per Person</u>	<u>Avg total #days/yr</u>
Acute Care (hospital + Psych Emergency Services)			
94	71.88%	3.22	15.65
95	75.00%	4.12	36.33
96	79.66%	4.91	41.49
97	41.38%	3.67	28.17
98a	31.85%	2.58	14.52
**	23.08%	2.00	12.67

avg age 41.27		
male	34	58%
female	24	41%
trans gender	1	2%

Psych Emergency Services			<u>avg LOS</u>
94	71.88%	2.30	0.58
95	70.45%	2.87	0.63
96	71.19%	3.36	0.47
97	37.93%	2.68	0.41
98a	32.69%	1.95	0.33
**	23.08%	1.50	0.33
Hospitals			<u>avg LOS</u>
94	40.63%	1.62	15.67
95	59.09%	1.81	24.32
96	76.27%	2.00	20.93
97	27.59%	1.81	22.48
98a	11.54%	1.88	22.19
**	7.69%	1.50	24.33

Ever arrested	8	14%
Ever assaulted	27	46%
Ever abusing substances	45	76%
% of Ever Abusing Substances contacted by Target Cities		
38%		

Intermediate Care (IMDs, halfway houses, acute diversion units, substance abuse residential treatment, detox)

94	50.00%	1.69	168.80
95	52.27%	2.22	123.08
96	84.75%	2.06	120.76
97	48.28%	2.07	173.79
98a	29.31%	1.30	184.85
**	23.08%	1.08	124.50

	<u>Total #Eligible</u>	<u>Avg cost per year</u>
94	32	\$28,452
95	44	\$39,980
96	59	\$49,495
97	58	\$37,139
98a	52	\$25,314
**	52	\$12,657

Permanent Residence (board & care, supported housing, indep living, living with family)

94	6.25%	1.00	229.00
95	18.18%	1.00	232.00
96	44.07%	1.08	171.00
97	48.28%	1.21	286.50
98a	52.50%	1.12	328.28
**	50.00%	1.12	168.81

** Note: These figures denote the actual results for the first half of 1998 prior to correction for annualization.

No Medicare (MediCal or No Insurance) (n=95)

	<u>%Elig Clients with Episode</u>	<u>Avg # Episodes per Person</u>	<u>Avg total #days/yr</u>
Acute Care (hospital + Psych Emergency Services)			
94	62.71%	3.97	24.86
95	77.14%	5.13	41.35
96	81.72%	6.20	47.49
97	56.47%	5.31	45.48
98a	48.30%	4.17	31.34
**	35.00%	3.25	27.39

avg age 37.87		
male	59	62%
female	35	37%
trans gender	1	1%

Psych Emergency Services		<u>avg LOS</u>		
94	59.32%	2.89	0.70	2.03
95	61.43%	3.37	0.61	2.07
96	73.12%	3.99	0.56	2.22
97	51.76%	3.41	0.45	1.52
98a	47.50%	2.99	0.32	0.96
**	33.75%	2.30	0.32	0.74
Hospitals		<u>avg LOS</u>		
94	44.07%	1.77	18.46	32.65
95	71.43%	2.64	16.26	42.92
96	74.19%	2.90	17.29	50.12
97	44.71%	2.76	20.15	55.68
98a	37.50%	1.91	23.49	44.82
**	23.75%	1.53	25.76	39.32

Ever arrested	32	34%
Ever assaulted	48	51%
Ever abusing substances	69	73%
% of Ever Abusing Substances contacted by Target Cities		
49%		

Intermediate Care (IMDs, halfway houses, acute diversion units, substance abuse residential treatment, detox)

94	54.24%	2.28	148.56
95	54.29%	2.24	146.95
96	81.72%	2.39	115.30
97	47.06%	2.25	190.76
98a	38.10%	1.92	150.76
**	30.00%	1.50	98.20

	<u>Total #Eligible</u>	<u>Avg cost per year</u>
94	59	\$27,532
95	70	\$44,145
96	93	\$54,848
97	85	\$45,266
98a	80	\$25,433
**	80	\$12,717

Permanent Residence (board & care, supported housing, indep living, living with family)

94	13.56%	1.00	342.00
95	22.86%	1.00	275.63
96	37.63%	1.09	168.89
97	42.35%	1.11	261.46
98a	52.50%	1.05	303.00
**	50.00%	1.05	157.67

** Note: These figures denote the actual results for the first half of 1998 prior to correction for annualization.

In ACT (n=54)

	<u>%Elig Clients with Episode</u>	<u>Avg # Episodes per Person</u>	<u>Avg total #days/yr</u>
Acute Care (hospital + Psych Emergency Services)			
94	69.77%	4.43	30.00
95	77.55%	6.74	58.97
96	83.02%	6.64	56.27
97	60.38%	6.16	54.56
98a	57.28%	4.90	31.36
**	41.51%	3.82	27.36

avg age 38.09		
male	30	56%
female	24	44%
trans gender	0	0%

Psych Emergency Services			<u>avg LOS</u>
94	65.12%	3.11	0.67
95	67.35%	4.48	0.63
96	81.13%	4.09	0.51
97	56.60%	3.90	0.45
98a	54.72%	3.53	0.40
**	39.62%	2.71	0.40
Hospitals			<u>avg LOS</u>
94	55.81%	1.92	18.30
95	71.43%	3.09	19.92
96	77.36%	2.83	20.58
97	47.17%	3.20	21.16
98a	47.17%	2.11	19.56
**	30.19%	1.69	21.44

Ever arrested	16	30%
Ever assaulted	27	50%
Ever abusing substances	37	69%
% of Ever Abusing Substances contacted by Target Cities		
59%		

Intermediate Care (IMDs, halfway houses, acute diversion units, substance abuse residential treatment, detox)

94	74.42%	2.34	195.15
95	65.31%	2.69	179.70
96	96.23%	2.41	158.96
97	79.25%	2.19	215.49
98a	62.30%	1.59	157.74
**	49.06%	1.31	100.67

	<u>Total #Eligible</u>	<u>Avg cost per year</u>
94	43	\$39,835
95	49	\$63,464
96	53	\$69,057
97	53	\$67,153
98a	53	\$38,998
**	53	\$19,499

Permanent Residence (board & care, supported housing, indep living, living with family)

94	4.65%	1.00	356.67
95	10.20%	1.00	241.80
96	32.08%	1.06	125.29
97	35.85%	1.26	248.63
98a	47.55%	1.08	273.90
**	45.28%	1.08	139.75

** Note: These figures denote the actual results for the first half of 1998 prior to correction for annualization.

Not in ACT (n=100)

	<u>%Elig Clients with Episode</u>	<u>Avg # Episodes per Person</u>	<u>Avg total #days/yr</u>
Acute Care (hospital + Psych Emergency Services)			
94	62.50%	2.93	12.67
95	75.38%	3.20	24.31
96	79.80%	5.19	39.03
97	44.44%	3.65	27.83
98a	31.44%	2.22	20.10
**	22.78%	1.72	17.61

avg age 39.76		
male	63	63%
female	35	35%
trans gender	2	2%

Psych Emergency Services			<u>avg LOS</u>	
94	62.50%	2.23	0.66	1.47
95	63.08%	2.10	0.62	1.29
96	67.68%	3.52	0.54	1.91
97	40.00%	2.56	0.41	1.06
98a	31.65%	1.66	0.13	0.22
**	22.78%	1.28	0.13	0.17
Hospitals			<u>avg LOS</u>	
94	31.25%	1.40	16.00	22.40
95	63.08%	1.73	16.03	27.76
96	73.74%	2.38	16.98	40.48
97	32.22%	1.86	19.91	37.07
98a	13.92%	1.43	35.80	51.14
**	8.86%	1.14	39.25	44.86

Ever arrested	24	24%
Ever assaulted	48	48%
Ever abusing substances	77	77%
% of Ever Abusing Substances contacted by Target Cities		
		38%

Intermediate Care (IMDs, halfway houses, acute diversion units, substance abuse residential treatment, detox)

94	33.33%	1.56	94.62
95	44.62%	1.72	94.53
96	75.76%	2.16	90.26
97	28.89%	2.15	135.21
98a	16.08%	2.03	172.82
**	12.66%	1.50	123.10

Permanent Residence (board & care, supported housing, indep living, living with family)

94	16.67%	1.00	312.00
95	29.23%	1.00	266.16
96	44.44%	1.09	186.20
97	50.00%	1.11	282.00
98a	55.82%	1.07	333.81
**	53.16%	1.07	174.02

	<u>Total #Eligible</u>	<u>Avg cost per year</u>
94	48	\$17,086
95	65	\$26,931
96	99	\$43,962
97	90	\$26,987
98a	79	\$15,842
**	79	\$7,921

** Note: These figures denote the actual results for the first half of 1998 prior to correction for annualization.



No Substance Abuse (n=40)

	<u>%Elig Clients with Episode</u>	<u>Avg # Episodes per Person</u>	<u>Avg total #days/yr</u>
Acute Care (hospital + Psych Emergency Services)			
94	64.00%	3.06	30.88
95	73.33%	4.00	50.95
96	82.50%	5.82	59.73
97	52.50%	4.57	39.67
98a	58.11%	4.89	48.38
**	42.11%	3.81	42.31

avg age 42.80		
male	22	55%
female	18	45%
trans gender	0	0%

Psych Emergency Services			<u>avg LOS</u>	
94	56.00%	2.21	0.71	1.57
95	63.33%	2.53	0.60	1.53
96	77.50%	3.65	0.59	2.16
97	52.50%	2.86	0.47	1.33
98a	57.89%	3.25	0.35	1.14
**	42.11%	2.50	0.35	0.88
Hospitals			<u>avg LOS</u>	
94	48.00%	1.50	26.22	39.33
95	70.00%	1.90	27.30	52.00
96	82.50%	2.39	24.10	57.70
97	35.00%	2.57	22.36	57.50
98a	55.26%	2.02	28.79	58.14
**	34.21%	1.62	31.57	51.00

Ever arrested	5	13%
Ever assaulted	0	0%
Ever abusing substances	0	0%
% of Ever Abusing Substances contacted by Target Cities		
		?

Intermediate Care (IMDs, halfway houses, acute diversion units, substance abuse residential treatment, detox)

94	48.00%	1.75	196.25
95	46.67%	1.79	221.29
96	80.00%	1.84	137.66
97	42.50%	1.82	218.24
98a	30.08%	1.12	139.82
**	23.68%	1.00	87.78

Permanent Residence (board & care, supported housing, indep living, living with family)

94	20.00%	1.00	284.33
95	26.67%	1.00	270.63
96	50.00%	1.00	175.73
97	52.50%	1.05	294.45
98a	63.55%	1.09	316.86
**	60.53%	1.09	163.29

	<u>Total #Eligible</u>	<u>Avg cost per year</u>
94	25	\$33,666
95	30	\$50,544
96	40	\$64,418
97	40	\$48,644
98a	38	\$30,489
**	38	\$15,244

** Note: These figures denote the actual results for the first half of 1998 prior to correction for annualization.

Substance Abuse (past or present) (n=114)

	<u>%Elig Clients with Episode</u>	<u>Avg # Episodes per Person</u>	<u>Avg total #days/yr</u>
Acute Care (hospital + Psych Emergency Services)			
94	66.67%	3.91	17.86
95	77.38%	5.00	35.55
96	80.36%	5.67	39.87
97	49.51%	4.84	39.73
98a	35.23%	2.90	11.58
**	25.53%	2.25	10.08

avg age 37.90		
male	71	62%
female	41	36%
trans gender	2	2%

Psych Emergency Services		<u>avg LOS</u>		
94	66.67%	2.80	0.65	1.82
95	65.48%	3.38	0.62	2.11
96	70.54%	3.78	0.50	1.90
97	43.69%	3.31	0.42	1.40
98a	34.04%	2.26	0.30	0.68
**	24.47%	1.74	0.30	0.52
Hospitals		<u>avg LOS</u>		
94	40.91%	1.81	14.41	26.15
95	65.48%	2.53	15.81	39.95
96	72.32%	2.60	16.29	42.44
97	38.83%	2.45	20.03	49.08
98a	17.02%	1.75	14.98	26.22
**	10.64%	1.40	16.43	23.00

Ever arrested	35	31%
Ever assaulted	75	66%
Ever abusing substances	114	100%
% of Ever Abusing Substances contacted by Target Cities		
45%		

Intermediate Care (IMDs, halfway houses, acute diversion units, substance abuse residential treatment, detox)

94	54.55%	2.19	144.57
95	55.95%	2.36	114.84
96	83.93%	2.40	110.74
97	49.51%	2.29	173.00
98a	36.48%	1.91	168.89
**	28.72%	1.48	112.82

	<u>Total #Eligible</u>	<u>Avg cost per year</u>
94	66	\$25,710
95	84	\$39,784
96	112	\$48,713
97	103	\$39,513
98a	94	\$23,303
**	94	\$11,652

Permanent Residence (board & care, supported housing, indep living, living with family)

94	7.58%	1.00	362.00
95	19.05%	1.00	256.31
96	36.61%	1.12	166.56
97	41.75%	1.21	260.88
98a	48.03%	1.07	310.38
**	45.74%	1.07	161.18

** Note: These figures denote the actual results for the first half of 1998 prior to correction for annualization.

Stable Population (n=83)

	<u>%Elig Clients with Episode</u>	<u>Avg # Episodes per Person</u>	<u>Avg total #days/yr</u>
Acute Care (hospital + Psych Emergency Services)			
94	65.06%	3.78	23.00
95	72.29%	5.28	44.25
96	74.70%	5.50	49.37
97	51.81%	4.74	41.93
98a	48.22%	4.08	31.64
**	34.94%	3.17	27.66

avg age 39.72		
male	51	61%
female	31	37%
trans gender	1	1%

Psych Emergency Services			<u>avg LOS</u>	
94	62.65%	2.69	0.69	1.85
95	61.45%	3.55	0.64	2.28
96	68.67%	3.44	0.52	1.79
97	45.78%	3.18	0.48	1.53
98a	46.99%	2.97	0.33	0.98
**	33.73%	2.29	0.33	0.75
Hospitals			<u>avg LOS</u>	
94	44.58%	1.73	17.91	30.97
95	62.65%	2.62	18.68	48.87
96	67.47%	2.59	20.41	52.84
97	40.96%	2.44	21.02	51.32
98a	32.53%	2.06	25.44	52.37
**	20.48%	1.65	27.89	45.94

Ever arrested	23	28%
Ever assaulted	38	46%
Ever abusing substances	58	70%
% of Ever Abusing Substances contacted by Target Cities		
		41%

Intermediate Care (IMDs, halfway houses, acute diversion units, substance abuse residential treatment, detox)

94	51.81%	2.05	163.57
95	54.22%	2.27	174.06
96	79.52%	2.08	133.68
97	49.40%	2.12	196.26
98a	38.25%	1.48	167.10
**	30.12%	1.24	106.56

Permanent Residence (board & care, supported housing, indep living, living with family)

94	9.64%	1.00	314.80
95	18.07%	1.00	265.27
96	40.96%	1.06	178.03
97	42.17%	1.20	289.60
98a	50.60%	1.08	311.17
**	48.19%	1.08	160.98

	<u>Total #Eligible</u>	<u>Avg cost per year</u>
94	83	\$29,393
95	83	\$48,745
96	83	\$55,437
97	83	\$44,655
98a	83	\$27,447
**	83	\$13,724

** Note: These figures denote the actual results for the first half of 1998 prior to correction for annualization.

Transient Population (n=71)

	<u>%Elig Clients with Episode</u>	<u>Avg # Episodes per Person</u>	<u>Avg total #days/yr</u>
Acute Care (hospital + Psych Emergency Services)			
94	75.00%	2.83	6.33
95	87.10%	3.56	28.78
96	88.41%	5.92	40.95
97	48.33%	4.79	36.41
98a	30.98%	2.69	12.20
**	22.45%	2.09	10.64

avg age 38.54		
male	42	59%
female	28	39%
trans gender	1	1%

Psych Emergency Services			<u>avg LOS</u>	
94	75.00%	2.33	0.43	1.00
95	74.19%	2.30	0.55	1.26
96	76.81%	4.08	0.53	2.17
97	46.67%	3.14	0.38	1.18
98a	30.61%	1.89	0.31	0.59
**	22.45%	1.45	0.31	0.45
Hospitals			<u>avg LOS</u>	
94	25.00%	1.50	10.67	16.00
95	77.42%	1.79	17.40	31.17
96	84.06%	2.50	16.43	41.09
97	33.33%	2.55	20.06	51.15
98a	18.37%	1.46	14.59	21.28
**	12.24%	1.17	16.00	18.67

Ever arrested	17	24%
Ever assaulted	37	52%
Ever abusing substances	56	79%
% of Ever Abusing Substances contacted by Target Cities		
		48%

Intermediate Care (IMDs, halfway houses, acute diversion units, substance abuse residential treatment, detox)

94	62.50%	2.40	105.57
95	51.61%	2.13	35.29
96	86.96%	2.47	99.30
97	45.00%	2.26	165.83
98a	28.51%	2.24	150.81
**	22.45%	1.64	107.08

Permanent Residence (board & care, supported housing, indep living, living with family)

94	25.00%	1.00	365.00
95	29.03%	1.00	254.11
96	39.13%	1.11	159.43
97	48.33%	1.10	252.00
98a	55.71%	1.08	314.80
**	53.06%	1.08	163.29

	<u>Total #Eligible</u>	<u>Avg cost per year</u>
94	8	\$15,028
95	31	\$27,403
96	69	\$49,715
97	60	\$38,504
98a	49	\$21,826
**	49	\$10,913

** Note: These figures denote the actual results for the first half of 1998 prior to correction for annualization.

**ACT/Non-ACT Comparisons (X² statistic)
Statistically Significant findings**

1998

		<u>Chi-Sq</u>	<u>p-value</u>
% In Acute Care	uncorrected	8.13	0.004
	Yates corrected	7.13	0.008
% in Intermediate Level Care	uncorrected	27.23	<0.000
	Yates corrected	25.31	<0.000
% Using Psych Emergency	uncorrected	6.98	0.008
	Yates corrected	6.06	0.013
% Hospitalized	uncorrected	16.23	<0.000
	Yates corrected	14.66	<0.000

1994

		<u>Chi-Sq</u>	<u>p-value</u>
% in Intermediate Level Care	uncorrected	20.81	<0.000
	Yates corrected	19.17	<0.000
% in Permanent Residence	uncorrected	3.98	0.046
	Yates corrected	2.98	not signif.
% Hospitalized	uncorrected	7.82	0.005
	Yates corrected	7.77	0.009

Stable/Transient Comparisons (X² statistic)
Statistically Significant findings
1998

		<u>Chi-Sq</u>	<u>p-value</u>
% In Acute Care 1998	uncorrected	3.92	0.047
	Yates corrected	3.23	not signif

Medicare/No Medicare Comparisons (X² statistic)
Statistically Significant findings
1994

		<u>Chi-Sq</u>	<u>p-value</u>
% Hospitalized 1994	uncorrected	10.71	0.001
	Yates corrected	9.44	0.002

Substance Abuse/No Substance Abuse Comparisons (X² statistic)
Statistically Significant findings
1998

		<u>Chi-Sq</u>	<u>p-value</u>
% In Acute Care 1998	uncorrected	5.78	0.016
	Yates corrected	4.88	0.027
% Using Psych Emergency 1998	uncorrected	6.37	0.012
	Yates corrected	5.42	0.019
% Hospitalized 1998	uncorrected	19.62	<0.000
	Yates corrected	9.44	<0.000

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